

Figure 1A

SEQ ID NO:1

```
1      atgggaggag gacagtcaat aatgaagcaa tttaaaagta taattaacac gtcgcaggac
61     tttgaaaaaa gaatagaaaa gataaaaaaa gaagtaatca atgacccaga tgttaagcaa
121    tttttggaag cgcacgcgagc tgaattaacg aatgctatga ttgatgaaga cttaaagtgt
181    ttacaagagt ataaagatca acaaaaacat tatgacggtc ataaatttgc tgattgtcca
241    aatttcgtaa aggggcatgt gcctgagtta tatgttgata ataaccgaat taaaatacgc
301    tatttacaat gcccatgtaa aatcaagtac gacgaagaac gctttgaagc tgagctaatt
361    acatctcatc atatgcaacg agatacttta aatgccaaat tgaaagatat ttatatgaat
421    catcgagacc gtcttgatgt agctatggca gcagatgata tttgtacagc aataactaat
481    ggggaacaag tgaaaggcct ttacctttat ggtccatttg ggacaggtaa atcttttatt
541    ctaggtgcaa ttgcgaatca gctcaaactc aagaaggtag gttcgacaat tattttatta
601    ccggaattta ttagaacatt aaaagggtggc tttaaagatg gttcttttga aaagaaatta
661    catcgcgtaa gagaagcaaa cattttaatg cttgatgata ttggggctga agaagtgact
721    ccatgggtga gagatgaggt aattggacct ttgctacatt atcgaatggt tcatgaatta
781    ccaacattct ttagttctaa ttttgactat agtgaattgg aacatcattt agcgatgact
841    cgtgatggtg aagagaagac taaagcagca cgtattattg aacgtgtcaa atctttgtca
901    acaccatact ttttatcagg agaaaatttc agaaacaatt ga
```

Figure 1B

SEQ ID NO:2

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1      MGGGQSIMKQ FKSINTSQD FEKRIEKIKK EVINDPDVKQ FLEAHRAELT NAMIDEDLNV
61     LQEYKDQQKH YDGHKFADCP NFVKGHVPEL YVDNNRIKIR YLQCPCKIKY DEERFEAELI
121    TSHHMQRDTL NAKLKDIYMN HRDRLDVAMA ADDICTAITN GEQVKGLYLY GPFGTGKSFI
181    LGAIANQLKS KKVRSIIYL PEFIRTLKGG FKDGSEKKL HRVREANILM LDDIGAEVTV
241    PWVRDEVIGP LLHYRMVHEL PTFSSNFYD SELEHHLAMT RDGEEKTKAA RIIERVKSLS
301    TPYFLSGENF RNN
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Figure 2A

SEQ ID NO:3 Complete genome sequence of bacteriophage 77

1	gatcaaaata	cttggggaac	ggttaggag	taaacttcgc	gataatttta	aaaattcatg
61	tataaccccc	ctcttataac	catttttaagg	cagggtgatga	aatggagatt	atagtcgatg
121	aaaatttagt	gcttaaagaa	aaagaaaggc	tacaagtatt	atataaagac	atacctagca
181	ataaattaaa	agtagttgat	ggtttaatta	ttcaagcagc	aaggctacgt	gtaatgcttg
241	attacatgtg	ggaagacata	aaagaaaaag	gtgattatga	tttattttact	caatctgaaa
301	aggcgccacc	atatgaaagg	gaaagaccag	tagccaaact	atttaatgct	agagatgctg
361	catatcaaaa	aataatcaaa	caattatcgg	atttattgcc	cgaagagaaa	gaagacacag
421	aaacgccatc	tgatgattac	ctatgattag	taataaatac	gttgatgaat	atataaaattt
481	gtggaaacaa	ggaaagataa	ttttaaataa	agaaagaatt	gatctcttta	attatctaca
541	aaaacatata	tattcacgag	atgatgtata	ttttgatgaa	cagaaaatcg	aggattgtat
601	caaattttatt	gaaaaatggg	attttccaac	attaccattt	caaagggttta	tcatagctaa
661	tatatttctt	atagataaaa	atacagatga	agcttttctt	acagaatttg	ctatttttcat
721	gggacgtgga	ggcgggaaaa	acggtctaata	aagtgtctatt	agtgaatttc	tttctacgcc
781	cttacacgga	gttaaagaat	atcacatctc	cattgttgct	aatagtgaag	atcaagcaaaa
841	aacatcgttt	gatgaaatca	gaaccgtttt	aatggataac	aaacgaaata	agacgggttaa
901	aacgccaaaa	gctccttatg	aagttagtaa	agcaaaaaata	ataaaccgtg	caactaaatc
961	ggttattcga	tataacacat	caaacacaaa	aaccaaaagac	ggtaggacgtg	aggggtgtgt
1021	tattttttgat	gaaattcatt	atttcttttg	tcctgaaatg	gtaaacgtca	aacgtgggtg
1081	attaggtaaa	aagaaaaata	gaagaacgtt	ttatataagt	actgatgggt	ttgttagaga
1141	gggttatatc	gatgcaatga	agcacaaaat	tgcaagtgtg	ttcaagtggc	agggttaaaaa
1201	tagtagattg	tttgcttttt	attgtaaagt	agacgatcca	aaagaagttg	atgacagaca
1261	gacgtgggaa	aaggcgaaacc	caatgttaca	taaaccgtta	tcagaatacg	ctaaaacact
1321	gctaagcacg	attgaagaag	aataataacga	tttaccattc	aaccgttcaa	ataagcccg
1381	attcatgact	aagcgaatga	atttgcctga	agttgacctt	gaaaaagtaa	tagcaccatg
1441	gaaagaaata	ctagcgacta	atagagagat	accaaaattta	gataatcaaa	tgtgtattgg
1501	tggttttagac	tttgcaaaaa	ttcgagattt	tgcaagtgtg	gggctattat	tccgaaaaaaa
1561	cgatgattac	atttgggttag	gacattcgtt	tgtaagacaa	gggttttttg	atgatgtcaa
1621	attagaacct	cctattaaag	aatgggaaaa	aatgggatta	ttgaccattg	tcgatgatga
1681	tgtcattgaa	attgaatata	tagttgattg	gttttttaaa	gctagagaaa	aatatgggct
1741	tgaaaaagtc	atagctgata	attatagaac	tgatattgta	agacgtgcgt	ttgaggatgc
1801	tggcataaaa	cttgaagtac	ttagaaaatcc	aaaagcaata	catggattac	ttgcaccacg
1861	tatcgataca	atgtttgcca	aacataacgt	aatatatgga	gacaatcctt	tgatgcgttg
1921	gtttactaat	aatgttgctg	taaaaaatcaa	gccggatgga	aataaagagt	atatcaaaaa
1981	agatgaagtc	agacgtaaaa	cgatgggatt	catggctttt	gttcacgcat	tatatagagc
2041	agacgatata	gtagacaaaag	acatgtctaa	agcgcttgat	gcattaatga	gtatagattt
2101	ctaataagagg	aggtagagaca	tgagtattct	agaaaaagata	tttaaaacta	ggaaagatat
2161	aacatatatg	cttgatttag	atatgataga	agatctatca	caacaagcgt	atgtgaaacg
2221	tttagcgatt	gatagttgta	ttgaatttgt	tgcgcgagct	gtcgctcaaa	gtcatttttaa
2281	agtattggaa	ggtaatagaa	ttcaaaaagaa	tgatgtttac	tacaagttaa	atataaaacc
2341	aaatactgac	ttatcaagcg	atagtttttg	gcaacaagtt	atatataaac	taatttatga
2401	taacgagggt	ttaatcgtag	taagtgcag	caaagaatta	cttatcgtag	atagctttta
2461	cagagaagag	tacgctttgt	atgatgat	attcaaaagat	gtaacgggtta	aagattatac
2521	ttatcaacgt	actttcacaa	tgcaagaggt	catatattta	aagtacaaca	acaataaagt
2581	gacacacttt	gtagaaaagtc	tattcgaaga	ttacgggaaa	atattcgga	gaatgatagg
2641	tgcaacaatta	aaaaactatc	aaataagagg	gatttttgaaa	tctgcctcta	gcgcatatga
2701	cgaaaaagaat	atagaaaaat	tacaagcggt	cacaaataaa	ttattcaata	cttttaataa

Figure 2B

2761	aaatcaacta	gcaatcgcg	ctttgataga	aggttttgat	tatgaggaat	tatctaattg
2821	tggtaagaat	agtaacatgc	ctttttctga	attgagtgag	ctaattgagag	atgcaataaa
2881	aaatgttgcg	ttgatgattg	gtatacctcc	aggtttgatt	tacggagaaa	cagctgattt
2941	ggaaaaaac	acgcttgat	ttgagaagtt	ctgtttaaca	cctttattaa	aaaagattca
3001	gaacgaatta	aacgcgaaac	tcataacaca	aagcatgtat	ttgaaagata	caagaataga
3061	aattgtcggt	gtgaataaaa	aagacccact	tcaatatgct	gaagcaattg	acaaacttgt
3121	aagttctggt	tcatttacaa	ggaatgaggt	gcggattatg	ttaggtgaag	aaccatcaga
3181	caatcctgaa	ttagacgaat	acctgattac	taaaaactac	gaaaaagcta	acagtgggtga
3241	aaatgatgaa	aaagaaaaag	atgaaaacac	tttgaaagg	ggtgatgaag	atgaaagcgg
3301	agattaaagg	cgatcatcgt	tccaacgaag	ataaatgggt	ttacgaaatg	cttgggtatgg
3361	attcgacttg	tcctaaagat	gttttaacac	aactagaatt	tagtgatgaa	gatgttgata
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3481	gagctcataa	aggcaaagt	aatgttcgta	tcacagcaat	agcagcaagt	gcggcatcgc
3541	ttatcgcaat	ggctggtgac	cacatcgaaa	tgagtccggt	tgctagaatg	atgattcaca
3601	atccttcaag	tattgcgcaa	ggagaagtga	aagatctaaa	tcagtctgca	gaaacattag
3661	aacatgttgg	tcaaataatg	gctgaggtat	atgcggttag	agctggtaaa	aacaaacaag
3721	aacttataga	aatgatggct	aaggaaacgt	ggctaaatgc	tgatgaagcc	attgaacaag
3781	gttttgcgga	tagtaaaatg	tttgaaaacg	acaatatgca	aattgtagca	agcgatacac
3841	aagtgttatc	gaaagatgta	ttaaatcgtg	taacagcttt	ggtaagttaa	acgccagagg
3901	ttaacattga	tattgacgca	atagcaaata	aagtaattga	aaaaataaat	atgaaagaaa
3961	aggaatcaga	aatcgatgtt	gcagatagta	aattatcagc	aaatggattt	tcaagattcc
4021	ttttttaata	caaaaatagg	aggtcataaa	atgactataa	atttatcgga	aacattcgca
4081	aatgcgaaaa	acgaatttat	taatgcagta	aacaacgggtg	aaccgcaaga	aagacaaaat
4141	gaattgtacg	gtgacatgat	taaccaacta	tttgaagaaa	ctaaattaca	agcaaaaagca
4201	gaagctgaaa	gagtttctag	tttacctaaa	tcagcacaaa	ctttgagtgc	aaaccaaaaga
4261	aatttcttta	tggatatcaa	taagagtgtt	ggatataaag	aagaaaaact	tttaccagaa
4321	gaaacaattg	atagaatctt	cgaagattta	acaacgaatc	atccattatt	agctgactta
4381	ggtattaaaa	atgctggttt	gcgtttgaag	ttcttaaaat	ccgaaacttc	tggcgtggct
4441	gtttggggta	aaatctatgg	tgaaattaaa	ggccaattag	atgctgcgtt	cagtgaagaa
4501	acagcaattc	aaaataaaat	gacagcggtt	gttggtttac	caaaaagattt	aaatgatttt
4561	ggctcctgct	ggattgaaag	atttgctcgt	gttcaaactc	aagaagcatt	tgcagtggcg
4621	cttgaaaactg	cgttcttaaa	aggtactggg	aaagaccaac	cgattggctt	aaaccgtcaa
4681	gtacaaaaag	gtgtatcggt	aactgatgg	gcttatccag	agaaagaaga	acaaggtagc
4741	cttacatttg	ctaattccgcg	cgctacgggt	aatgaattga	cgcaagtgtt	taaataccac
4801	tcaactaacg	agaaaggtaa	atcagtagcg	gttaaaggta	atgtaacaat	ggttggtaat
4861	ccgtccgatg	cttttgagg	tcaagcacag	tatacacatt	taaatgcaaa	tggcgtatat
4921	gttactgctt	taccatttaa	tttgaatgtt	attgagtcta	cagttcaaga	agcaggtaag
4981	gttttaacgt	acgttaaagg	tctatatgat	ggttatttag	ctgggtggat	taagtgtcag
5041	aaatttaaag	aaacacttgc	gttagatgat	atggatttat	acactgcaaa	acaatttgct
5101	tacggcaaag	cgaaagataa	taaagttgct	gctgtttgga	aattagattt	aaaaggacat
5161	aaaccagctt	tagaagatac	cgaagaaaca	ctataaaatt	ttatgaggtg	ataaaatggt
5221	gaaatttaaa	gttggttagag	aatttaaaga	catagagcac	aatcaacaca	agtacaaagt
5281	aggggagttg	tatccagctg	aagggtataa	caatcctcgt	gttgaattgt	tgacaaatca
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5401	attattagaa	ctatgcgaat	cattacaaaa	aaaagcgtct	agttcaatgg	ttaaaagtga
5461	aatcatcgac	ttattgaatg	gtgaagacaa	tgacgattga	tgatttgctt	gtcaaattta
5521	aatcacttga	aaagattgac	cataattcag	aggatgagta	cttaaagcag	ttgttaaaaa
5581	tgtcgtacga	gcgtataaaa	aatcagtgcg	gagtttttga	attagagaat	ttaataggtc
5641	agaattgat	acttatacgc	gctagatatg	cttatcaaga	tttattagaa	cacttcaacg
5701	acaattacag	acctgaaata	atagattttt	cgttatctct	aatggaggta	tcagaagatg

Figure 2C

5761	aagaaagtgt	ttaagaaacc	tagaattaca	actaaacggt	taaatacgcg	tggttcatttt
5821	tataagtata	ctgaaaataa	tggtccagaa	gctggagaaa	aagaagaaaa	attattatat
5881	agctgttggg	cgagtattga	tggtgtctgg	ttacgtgaat	tagaacaagc	tatctcaaac
5941	ggaacgcaaa	atgacattaa	attgtatat	cgtgatccgc	aagggtgatta	tttaccagc
6001	gaagaacatt	atcttgaaat	tgaatcaaga	tattttcaaaa	atcgtttgaa	tataaagcaa
6061	gtatcaccag	atttggataa	taaagacttt	attatgattc	gcggaggata	tagttcatga
6121	gtgtgaaaagt	gacaggtgat	aaagcattag	aaagagaatt	agaaaaacat	tttggcataa
6181	aagagatggt	aaaagttcaa	gataaggcgt	taatagctgg	tgctaaggta	attggtgaag
6241	aaataaaaaa	acaactcaaa	ccttcagaag	actcaggagc	actgattagt	gagattgggtc
6301	gtactgaacc	tgaatggata	aaggggaaac	gtactgttac	aattaggtgg	cgtgggcctt
6361	ttgaacgatt	tagaatagta	catttaattg	aaaatggtca	tggtgagaaa	aagtcaggaa
6421	aatttgtaaa	acctaaaagc	atgggtggga	ttaatagagc	aataagacaa	gggcaaaata
6481	agtattttga	gacgctaaaa	agggagttga	aaaaattgtg	attgatattt	tgtacaaagt
6541	tcataaagt	attagtcaag	acagaattat	tagagagcac	gtaaatatca	ataatattaa
6601	gttcaataaa	taccctaattg	taaaagatac	tgatgtacct	tttattgtta	ttgacgatat
6661	cgacgaccca	atacctacaa	cttatactga	cggagatgag	tggtgatata	gttatattgt
6721	ccaaatagat	gtttttgtta	agtacaatga	tgaatataat	gcgagaatca	taagaaataa
6781	gatattcta	cgcatctcaa	agttattatg	gtctgaacta	aaaatgggaa	atgtttcaaa
6841	tggaaaaccg	gaatatatag	aagaatttaa	aacatataga	agctctcgcg	tttacgaggg
6901	cattttttat	aaggaggaaa	attaaatggc	agtaaaacat	gcaagtgcgc	caaaggcgta
6961	tattaacatt	actggtttag	gtttcgctaa	attaacgaaa	gaaggcgagg	aattaaaata
7021	tagtgatatt	acaaaaacaa	gaggattaca	aaaaattggt	gttgaaactg	gtggagaact
7081	aaaaacagct	tatgctgatg	gcggtccaat	tgaatcaggg	aatacagacg	gagaaggtaa
7141	aatctcatta	caaatacatg	cgttccctaa	agagattcgc	aaaattgttt	ttaatgaaga
7201	ttatgatgaa	gatggcggtt	acgaagagaa	acaaggtaaa	caaaaacaatt	acgtagctgt
7261	atgggttcaga	caagagcgta	aagacgggtac	atttagaaca	gtttttattac	ctaaagttat
7321	gtttacaaat	cctaaaaatcg	atggagaaaac	ggctgagaaa	gattgggcat	tctcaagtga
7381	agaggttgaa	ggtgaggcac	ttttcccttt	agttgataat	aaaaagtcag	tacgtaagta
7441	tatctttgat	tcagctaaac	tgacaaatca	tgatggagac	ggtgaaaaag	gcgaagaggc
7501	tttcttaaaag	aaaatttttag	gcgaagaata	tactggaaac	gtgacagagg	gtaacgaaga
7561	aactttgtaa	caaaaccggc	ttcatcggaa	actgcggtaa	agtcgggttaa	tataccagat
7621	agcattaaaa	cacttaaaagt	tggcgacaca	tacgatttaa	atggtgtagt	agagccatct
7681	aatcaaagta	agttattgaa	atacacaaca	gatcaaacga	atattgtatc	aatcaatagt
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7801	atgagtgaac	ctataacaat	aaatgtagaa	gcataagagg	gggcaacccc	tctattttat
7861	ttgaaaataa	ggagagtatt	ataaaatggc	aaaattaaaa	cgtaacatta	ttcaattagt
7921	agaagatcca	aaagcaaatg	aaattaaatt	acaaacgtac	ttaacaccac	acttcatttc
7981	atttgaaatt	gtatacgaag	caatggattt	aatcgatgat	attgaggacg	aaaatagcac
8041	gatgaagcca	agagaaatcg	ctgacagatt	gatggatatg	gttgtaaaaa	tttacgataa
8101	ccaattcaca	gttaaagacc	taaaagaacg	tatgcatgca	cctgatggaa	tgaatgcact
8161	tcgtgaacaa	gtgattttca	ttactcaagg	tcaacaaact	gaggaaacta	gaaattttat
8221	ccagaacatg	aaataaagcc	tgaagattta	acataataag	caatggtgaa	aaatatggat
8281	actctcatga	tggacttaat	tgaaaatggt	aaagacgcta	acgaagtttt	aaaaatgccca
8341	tttcattatg	tgctttccat	atatcaaaat	aaaaataatg	acatttctga	agaaaaagca
8401	gagggttttaa	ttgatgcatt	ttaaccttaa	ccggttggtt	aggggttatt	ttttgaactt
8461	ttttagaaaag	gaggtaaaaa	atgggagaaa	gaataaaaag	tttatctata	ggtttggatt
8521	tagatgcagc	aaatttaaatt	agatcatttg	cagaaatcaa	acgaaacttt	aaaacttttaa
8581	attctgactt	aaaattaaca	ggcaacaact	tcaaatatac	cgaaaaatca	actgatagtt
8641	acaaacaaaag	gattaaagaa	cttgatggaa	ctatcacagg	ttataagaaa	aacggtgatg
8701	atttagccaa	gcaatatgac	aaggatcttc	aagaacaggg	cgaaaacagt	gcgaagctc

Figure 2D

8761	aaaagttacg	acaagaatat	aacaaacaag	caaatgagct	gaattattta	gaaagagaat
8821	tacaaaaaac	atcagccgaa	tttgaagagt	tcaaaaaaagc	tcaagttgaa	gctcaaagaa
8881	tggcagaaaag	tggctgggga	aaaaccagta	aagtttttga	aagtattgga	cctaaattaa
8941	caaaaatggg	tgatggttta	aaatccattg	gtaaagggtt	gatgattggt	gtaactgcac
9001	ctgttttagg	tattgcagca	gcatcaggaa	aagcttttgc	agaagttgat	aaagggttag
9061	atactgttac	tcaagcaaca	ggcgcaacag	gcagtgaatt	aaaaaaattg	cagaactcat
9121	ttaaagatgt	ttatggcaat	tttccagcag	atgctgaaac	tgttggtgga	gttttaggag
9181	aagttaatac	aaggttaggt	tttacaggta	aagaacttga	aaatgccaca	gagtcattct
9241	tgaaattcag	tcatataaca	ggttctgacg	gtgtgcaagc	cgtacagtta	attaccctg
9301	caatgggcga	tgcaggatc	gaagcaagt	aatatcaaag	tgttttggat	atggtagcaa
9361	aagcggcgca	agctagtggg	ataagtgtt	atacattagc	tgatagtatt	actaaatacg
9421	gcgctccaat	gagagctatg	ggctttgaga	tgaaagaatc	aattgcttta	ttctctcaat
9481	gggaaaagtc	aggcgttaat	actgaaatag	cattcagtg	tttgaaaaaa	gctatatcaa
9541	attggggtaa	agctggtaaa	aaccaagag	aagaatttaa	gaagacatta	gcagaaattg
9601	aaaagacgcc	ggatatagct	agcgcaacaa	gtttagcgat	tgaagcattt	ggtgcaaagg
9661	caggtcctga	tttagcagac	ggttctgacg	tggttcgctt	tagttatcaa	gaatttttaa
9721	aaactattga	agattcccaa	ggcacagtaa	accaaactt	taaagattct	gaaagtggct
9781	ccgaaagatt	taaagtagca	atgaataaat	taaaattagt	aggtgctgat	gtatgggctt
9841	ctattgaaag	tgctgttgct	ccgtaaatgg	aagaattaat	caaaaagcta	tctatagcgg
9901	ttgattgggt	ttccaattta	agtgtgggt	ctaaaagatc	aattgttatt	ttcagtggta
9961	ttgctgctgc	aattggctct	gtagttttgg	ggttagggtg	atttataagt	acaattggca
10021	atgcagtaac	tgtatttagct	ccattgttag	ctagtattgc	aaaggctggt	ggtttgatta
10081	gtttttttatc	gactaaagta	cctatattag	gaactgtctt	cacagcttta	actggtccaa
10141	ttggcattgt	attaggtgta	ttggctgggt	tagcagtcgc	atttacaatt	gcttataaga
10201	aatctgaaac	atttagaaat	tttgtaaatg	gtgcaattga	aagtgttaaa	caaacattta
10261	gtaattttat	tcaattttatt	caacctttcg	ttgattctgt	taaaaacatc	tttaaaacaag
10321	cgatatcagc	aatagttgat	ttcgcaaaag	atatttggag	tcaaatcaat	ggattcttta
10381	atgaaaaacg	aattttccatt	gttcaagcag	ttcaaaatat	atgcaacttt	atgaaagcga
10441	tattttgaatt	tatttttaaat	tttgtaatta	aaccaattat	gttcgcgatt	tggcaagtga
10501	tgcaatttat	ttggccggcg	gttaaagcct	tgattgtcag	tacttgggag	aacataaaag
10561	gtgtaataca	aggtgcttta	aatatcatac	ttggcttgat	taagttcttc	tcaagtttat
10621	tcgttggtga	ttggcgagga	gtttgggacg	ccgttgtgat	gattcttaaa	ggagcagttc
10681	aattaatttg	gaatttagtt	caattatggt	ttgtaggtaa	aatacttggg	gttggttaggt
10741	actttggcgg	gttgctaaaa	ggattgatag	caggaatttg	ggacgtaata	agaagtatat
10801	tcagtaaatc	tttatcagca	atttggaaatg	caacaaaaag	tatttttggg	tttttattta
10861	atagcgtaaa	atcaattttc	acaaatatga	aaaattgggt	atctaatact	tggagcagta
10921	tccgtacgaa	tacaatagga	aaagcgcagt	cattattttag	tggcgctcaa	tcaaaattta
10981	ctaattttatg	gaatgcgacg	aaagaaattt	ttagtaattt	aagaaattgg	atgtcaaata
11041	tttggaattc	cattaaagat	aatacggtag	gaattgcaag	ccgtttatgg	agtaaggtag
11101	gtggaatttt	cacaaatatg	cgcgatggct	tgagtcccat	tatagataag	attaaaagtc
11161	atatcggcgg	tatggtaagc	gctattaaaa	aaggacttaa	taaattaatc	gacggtttta
11221	actgggtcgg	tggtaagttg	ggaatggata	aaatacctaa	gttacacact	ggtacagagc
11281	acacacatac	tactacaaga	ttagttaaga	acggtaagat	tgcacgtgac	acattcgcta
11341	cagttgggga	taagggacgc	ggaaatggct	caaatgggtt	tagaaatgaa	atgattgaat
11401	tccctaacgg	taaacgtgta	atcacaccta	atacagatac	taccgcttat	taccctaag
11461	gctcaaaagt	atacaacggt	gcacaaactt	attcaatggt	aaacggaacg	cttccaagat
11521	ttagttttagg	tactatgtgg	aaagatatta	aatctgggtg	atcatcgcca	tttaactgga
11581	caaaagataa	aataggtaaa	ggtaccaa	ggcttggcga	taaagttggc	gatgttttag
11641	attttatgga	aaatccaggc	aaacttttaa	attatatact	tgaagctttt	ggaattgatt
11701	tcaattcttt	aactaaaggt	atgggaattg	caggcgacat	aacaaaagct	gcatggtcta

Figure 2E

11761	agattaagaa	aagtgtact	gattggataa	aagaaaattt	agaagctatg	ggcgggtggcg
11821	athtagtcgg	cggaatatta	gaccctgaca	aaattaatta	tcattatgga	cgtaccgcag
11881	cttataccgc	tgcaactgga	agaccatttc	atgaagggtg	cgattttcca	tttgtatatc
11941	aagaagttag	aacgccgatg	ggtggcgac	ttacaagaat	gccattttatg	tctgggtggtt
12001	atggtaatta	tgtaaaaaatt	actagtggcg	ttatcgatat	gctattttgcg	catttgaaaa
12061	acttttagcaa	atcaccacct	agtggcacga	tggtaaagcc	cggtgatggt	gttggtttaa
12121	ctggtaatac	cggattttagt	acaggaccac	atttacattt	tgaaatgagg	agaaatggac
12181	gacattttga	ccctgaacca	tatttaagga	atgctaagaa	aaaaggaaga	ttatcaatag
12241	gtgggtggcg	tgctacttct	ggaagtggcg	caacttatgc	cagtcgagta	atccgacaag
12301	cgcaaagtat	tttaggtggt	cgttataaag	gtaaatggat	tcatagaccaa	atgatgcgcg
12361	ttgcaaaacg	tgaaagtaac	taccagtcaa	atgcagtga	taactgggat	ataaatgctc
12421	aaagaggaga	cccatcaaga	ggattattcc	aaatcatcgg	ctcaactttt	agagcaaacg
12481	ctaaacgtgg	atatactaac	tttaataatc	cagtacatca	aggtatctca	gcaatgcagt
12541	acattgttag	acgatatggt	tgggggtggt	ttaaacgtgc	tggtgattac	gcatatgcta
12601	caggtggaaa	agtttttgat	ggttggtata	acttaggtga	agacggtcat	ccagaatgga
12661	ttattccaac	agatccagct	cgtagaaatg	atgcaatgaa	gattttgcat	tatgcagcag
12721	cagaagtaag	agggaaaaaa	gcgagtaaaa	ataagcgtcc	tagccaatta	tcagacttaa
12781	acgggtttga	tgatcctagc	ttattattga	aaatgattga	acaacagcaa	caacaaatag
12841	ctttattact	gaaaatagca	caatctaacg	atgtgattgc	agataaagat	tatcagccga
12901	ttattgacga	atacgctttt	gataaaaaag	tgaacgcgtc	tatagaaaaag	cgagaaaagg
12961	aagaatcaac	aaaagtaaaag	tttagaaaaag	gaggaattgc	tattcaatga	tagacactat
13021	taaagtgaac	aacaaaacaa	ttccttggtt	gtatgtcgaa	agagggtttg	aaataccctc
13081	ttttaattat	gttttaaaaa	cagaaaatgt	agatggacgt	tcggggtcta	tatataaagg
13141	gcgtaggctt	gaatcttata	gttttgatat	acctttggtg	gtacgtaatg	actattttatc
13201	tcacaacggc	attaaaacac	atgatgacgt	cttgaatgaa	ttagtaaaat	tttttaacta
13261	cgaggaacaa	gttaaattac	aattcaaatc	taaagattgg	tactggaacg	cttattttcga
13321	aggaccaata	aagctgcaca	aagaattttac	aatacctgtt	aagtctcacta	tcaaaagtagt
13381	actaacagac	ccttacaat	attcagtaac	aggaaataaa	aatactgcga	tttcagacca
13441	agtttcagtt	gtaaatagtg	ggactgctga	cactccttta	attgttgaa	cccagcaaat
13501	taaaccatct	agttacttta	tgattactaa	aaatgatgaa	gattattttta	tggttggtga
13561	tgatgaggta	accaaagaag	ttaaggatta	catgcctcct	gtttatcata	gtgagtttcg
13621	tgatttcaaa	ggttggaata	agatgattac	tgaagatatt	ccaagtaatg	acttaggtgg
13681	taaggtcggc	ggtgactttg	tgatatccaa	tcttgcgaa	ggatataaaag	caactaattt
13741	tcctgatgca	aaagggtggg	ttggtgctgg	cacgaaacga	gggctcccta	aagcgatgac
13801	agattttcaa	attacctata	aatgtattgt	tgaacaaaaa	ggtaaagggtg	ccggaagaac
13861	agcacaacat	atttatgata	gtgatggtaa	gttacttgct	tctattgggt	atgaaaaataa
13921	atatcatgat	agaaaaatag	gacataattgt	tgttacgttg	tataaccaaa	aaggagaccc
13981	caaaaagata	tacgactatc	agaataaacc	gataatgtat	aacttgga	gaatcggtgt
14041	ttatatgcgg	ctcagaagag	taggtataaa	attttctatt	aaaacttgga	aatttgatca
14101	cattaaagac	ccagatagac	gtaaacctat	tgatatggat	gagaaagagt	ggatagatgg
14161	cggtaagttt	tatcagcgtc	cagcttctat	catagctgtc	tatagtgcga	agtataacgg
14221	ttataagtgg	atggagatga	atgggttagg	ttcattcaat	acggagattc	taccgaaacc
14281	gaaaggcgca	agggatgtca	ttatacaaaa	aggtgattta	gtaaaaatag	atatgcaagc
14341	aaaaagtgtt	gtcatcaatg	aggaaccaat	ggtgagcgag	aaatcgtttg	gaagtaatta
14401	tttcaatggt	gattctgggt	acagtgaatt	aatcatacaa	cctgaaaaacg	tctttgatac
14461	gacggttaaa	tggaagata	gatattttata	gaaaggagat	gagagtgtga	tacatgtttt
14521	agattttaac	gacaagatta	tagatttcct	ttctactgat	gacccttcct	tagttagagc
14581	gattcataaa	cgtaatgtta	atgacaattc	agaaatgctt	gaactgctca	tatcatcaga
14641	aagagctgaa	aagttccgtg	aacgacatcg	tgttattata	agggattcaa	acaaacaatg
14701	gcgtgaattt	attattaact	gggttcaaga	tacgatggac	ggctacacag	agatagaatg

Figure 2F

14761	tatagcgtct	tatcttgctg	atataacaac	agctaaaccg	tatgcaccag	gcaaatttga
14821	gaaaaagaca	acttcagaag	cattgaaaga	tgtgttgagc	gatacagggt	gggaagtttc
14881	tgaacaaacc	gaatacgtatg	gcttacgtac	tacgtcatgg	acttcttctc	aaactagata
14941	tgaagtttta	aagcaattat	gtacaacccta	taaaatgggt	ttagattttt	atattgagct
15001	tagctctaata	accgtcaaag	gtagatatgt	agtactcaaa	aagaaaaaca	gcttattcaa
15061	aggtaaagaa	attgaatatg	gtaaagattt	agtcgggtta	actaggaaga	ttgatatgtc
15121	agaaatcaaa	acagcattaa	ttgctgtggg	acctgaaaaat	gacaaaagga	agcgttttaga
15181	gctagtgtg	acagatgacg	aagcgcaaag	tcaattcaac	ctacctatgc	gctatatttg
15241	ggggatatat	gaaccacaat	cagatgatca	aaatatgaat	gaaacacgat	taagttcttt
15301	agccaaaaca	gagttaaata	aacgtaagtc	ggcagttatg	tcatatgaga	ttacttctac
15361	tgatttgga	gttacgtatc	cgcacgagat	tatatcaatt	ggcgatacag	tcagagtaaa
15421	acatagagat	tttaacccgc	cattgtatgt	agaggcagaa	gttattgctg	aagaatataa
15481	cataatttca	gaaaatagca	catatacatt	cggtcaaccct	aaagagttca	aagaatcaga
15541	attacgagaa	gagtttaaca	agcgattgaa	cataatacat	caaaagttaa	acgataatat
15601	tagcaatatc	aacactatag	tttaaatgt	tgtagatgg	gaattagaat	actttgaacg
15661	caaaatacac	aaaagtgata	caccgccaga	aaatccagtc	aatgatatgc	tttggtatga
15721	tacaagtaac	cctgatgttg	ctgtcttgcg	tagatattgg	aatggctcgat	ggattgaagc
15781	aacaccaa	gatgttgaaa	aattaggtgg	tataacaaga	gagaaagcgc	tattcagtga
15841	attaaacaat	atTTTTatta	atTTTctat	acaacacgct	agtcttttgt	cagaagctac
15901	agaattactg	aatagcgagt	acttagtaga	taatgatttg	aaagcggact	tacaagcaag
15961	tttagacgct	gtgattgatg	tttataatca	aattaaaaat	aatttagaat	ctatgacacc
16021	cgaaactgca	acgattgggtc	ggttggtaga	tacacaagct	ttatttcttg	agtatagaaa
16081	gaaattacaa	gatgtttata	cagatgtaga	agatgtcaaa	atcgccattt	cagatagatt
16141	taaattatta	cagtcacaat	acactgatga	aaaatataaa	gaagcgttgg	aaataatagc
16201	aacaaaattt	ggtttaacgg	tgaatgaaga	tttgcagtta	gtcggagaac	ctaattgtgt
16261	taaatcagct	attgaagcag	ctagagaatc	cacaaaagaa	caattacgtg	actatgtaaa
16321	aacatcggac	tataaaaacag	acaaagacgg	tattgttgaa	cgtttagata	ctgctgaagc
16381	tgagagaa	actttaaaag	gtgaaatcaa	agataaaagt	acgttaaaacg	aatatcgaaa
16441	cggattggaa	gaacaaaaac	aatatactga	tgaccagtta	agtgatttgt	ccaataatcc
16501	tgagattaaa	gcaagtattg	aacaagcaaa	tcaagaagcg	caagaagctt	taaaatcata
16561	cattgatgct	caagatgatc	ttaaagagaa	ggaatcgcaa	gcgtatgctg	atggtaaaat
16621	ttcggaaagaa	gagcaacgcg	ctatacaaga	tgctcaagct	aaacttgaag	aggcaaaaaca
16681	aaacgcagaa	ctaaaggcta	gaaacgcgtg	aaagaaagct	aatgcttata	cagacaacaa
16741	ggtcaaagaa	agcacagatg	cacagaggaa	aacattgact	cgctatgggt	ctcaaattat
16801	acaaaatggt	aaggaaatca	aattaagaac	tactaaagaa	gagtttaatg	caaccaatcg
16861	tacactttca	aatatattaa	acgagattgt	tcaaaatggt	acagatggaa	caacaatcag
16921	atatgatgat	aacggagtgg	ctcaagcttt	gaatgtgggg	ccacgtggta	ttagattaaa
16981	tgctgataaa	attgatatta	acggtaatag	agaaataaac	cttcttatcc	aaaatatgcy
17041	agataaaagta	gataaaaaccg	atattgtcaa	cagtcttaat	ttatcaagag	agggtcttga
17101	tatcaatggt	aatagaattg	gaattaaagg	cggtgacaat	aacagatatg	ttcaaataca
17161	gaatgattct	attgaactag	gtggtattgt	gcaacgtact	tggagaggga	aacgttcaac
17221	agacgatatt	tttacgcgac	tgaaagacgg	tcacctaaaga	tttagaaata	acaccgctgg
17281	cggttcactt	tatatgtcac	atTTTggtat	ttcgacttat	attgatgggtg	aagggtgaaga
17341	cgggtggttca	tctggtacga	ttcaatgggtg	ggataaaaact	tacagtgata	gtggcatgaa
17401	tggtataaca	atcaattcct	atgggtgggtg	cgttgcacta	acgtcagata	ataatcgggt
17461	tggtctggag	tcttacgctt	catcgaatat	caaaagcaaa	caggcaccgg	tgtattttata
17521	tccaaacaca	gacaaaagtgc	ctggattaaa	ccgatttgca	ttcacgctgt	ctaattgcaga
17581	taatgcttat	tcgagtgcag	gttatattat	gtttgggtct	gatgagaact	atgattacgg
17641	tgccgggtatc	aggttttcta	aagaaagaaa	taaaggctct	gttcaaatg	ttaatggacg
17701	atatgcaaca	ggtggagata	caacaatcga	agcagggtat	ggcaaattta	atatgctgaa

Figure 2G

17761	acgacgtgat	ggtaataggt	atattcatat	acagagtaca	gacctactgt	ctgtaggttc
17821	agatgatgca	ggagatagga	tagcttctaa	ctcaatttat	agacgtactt	attcggccgc
17881	agctaatttg	catattactt	ctgctggcac	aattgggcgt	tcgacatcag	cgcgtaaata
17941	caagttatct	atcgaaaatc	aatataacga	tagagatgaa	caactggaac	attcaaaaagc
18001	tattcttaac	ttacctatta	gaacgtgggt	tgataaaagct	gagtcgaaa	ttttagctag
18061	agagctgaga	gaagatagaa	aattatcgga	agacacctat	aaacttgata	gatacgtagg
18121	tttgattgct	gaagaggtgg	agaatttagg	attaaaaagag	tttgtcacgt	atgatgacaa
18181	aggagaaatt	gaaggtatag	cgtatgatcg	tctatggatt	catcttatcc	ctgttatcaa
18241	agaacaacaa	ctaagaatca	agaaattgga	ggagtcaaa	aatgcaggat	aacaaacaag
18301	gattacaagc	taatcctgaa	tatacaattc	attattttatc	acaggaaatt	atgaggttaa
18361	cacaagaaaa	cgcgatgtta	aaagcgtata	tacaagaaaa	taaagaaaat	caacaatgtg
18421	ctgaggaaga	gtaatcctta	gcactatttt	tatacaaaaa	tttaaggagg	tcattttaatt
18481	atggcaaaa	aaattatcaa	caatacagaa	aggtttattt	tagtacaagt	cgacaaagaa
18541	ggtacagaac	gtgtagtata	tcaagatttc	acaggaagtt	ttacaacttc	tgaaatgggt
18601	aacctgtctc	aagattttta	atctgaagaa	aacgctaaga	aaattgcgga	gacgttaaata
18661	ttgttatatc	aattaaactaa	caaaaaacaa	cgtgtgaaag	tagttaaaga	agtagttgaa
18721	agatcagatt	tatctccaga	ggtaacagtt	aacactgaaa	cagtatgaaa	agctatgagt
18781	tagatactca	tagtctttat	tcttttagaa	agcgggtgta	ctgaattggg	gtggttcaaa
18841	aaacacgaac	atgaatggcg	catcagaagg	ttagaagaga	atgataaaac	aatgctcagc
18901	acactcaacg	aaattaaatt	aggtaaaaa	acccaagagc	aagttaacat	taaattagat
18961	aaaaccttag	atgctattca	aaaagaagaa	gaaatagatg	aaaagaataa	gaaagaaaat
19021	gataagaaca	tacgtgatat	gaaaatgtgg	gtgcttgggt	tagttgggg	aatattttggg
19081	tcgctaatta	tagcattatt	gcgtatgctt	atgggcataat	aagagagggtg	attaccatgt
19141	tcggattaaa	ttttggagct	tcgctgtgga	cgtgtttctg	gtttggtaag	tgtaagtaat
19201	agttaagagt	cagtgtctcg	gcactggctt	tttatttttg	ataaaaggag	caaacaaatg
19261	gatgcaaaa	taataacaag	atacatcgta	ttgatcttag	cattagtaaa	tcaattctta
19321	gcgaacaaag	gtattagccc	aattccagta	gacgatgaaa	ctatatcatc	aataatactt
19381	actgtagtgc	ctttatatac	aacgtataaa	gacaatccaa	catctcaaga	aggtaaatgg
19441	gcaaatcaaa	aattaaagaa	atataaaagct	gaaaataagt	atagaaaagc	aacaggggcaa
19501	gcgccaatta	aagaagtaat	gacacctacg	aatatgaacg	acacaaatga	tttagggtag
19561	gtgggtgata	tatgttaatg	acaaaaaatc	aagcagaaaa	atgggttgac	aattcattag
19621	ggaaacaatt	caaccagat	ggttggtagt	gatttcagtg	ttatgattac	gccaatatgt
19681	tctttatggt	agcgacaggc	gaaaggctgc	aagggtttata	tgcttataat	atcccgtttg
19741	ataataaagc	aaagattgaa	aaatatgggtc	aaataattaa	aaactatgac	agctttttac
19801	cgcaaaaagt	ggatattgtc	gttttcccgt	caaagtatgg	tggcggagct	ggacacgttg
19861	aaattgttga	gagcgcaaat	ttaaatactt	tcacatcatt	tgggtcaaac	tggaacggta
19921	aagggtggac	taatggcggt	gcgcaacctg	gttgggggtcc	tgaaactgtg	acaagacatg
19981	ttcattatta	tgacaatcca	atgtatttta	ttagggttaa	cttccctaac	aacttaagcg
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20101	aacctaaaaa	aattatgctt	gtagccgggtc	atgggtataa	cgatcctgga	gcagtaggaa
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20221	taagacatgc	aggacatgaa	gttgcatat	acgggtggctc	aagtcaatca	caagatatgt
20281	atcaagatac	tgcatacggg	gttaatgtag	gcaataaaaa	agattatggc	ttatattggg
20341	ttaaatcaca	ggggtatgac	attgttctag	aaatacatct	agacgcagca	ggagaaaagcg
20401	caagtgggtg	gcatgttatt	atctcaagtc	aattcaatgc	agatactatt	gataaaagta
20461	tacaagatgt	tattaaaaat	aacttaggac	aaataagagg	tgtgacacct	cgtaattgatt
20521	tactaaatgt	taatgtatca	gcagaaataa	atataaatta	tcgtttatct	gaattaggtt
20581	ttattactaa	taaaaatgat	atggattgga	taaagaaaaa	ctatgacttg	tattctaaat
20641	taatagccgg	tgcgattcat	ggtaagccta	taggtgggtt	ggtagctggg	aatgttaaaa
20701	catcagctaa	aaacaaaaaa	aatccaccag	tgccagcagg	ttatacactc	gataagaata

Figure 2H

20761	atgtccctta	taaaaaagaa	caaggcaatt	acacagtagc	taatgttaaa	ggtaataatg
20821	taagagacgg	ttattcaact	aattcaagaa	ttacaggggt	attacccaac	aacacaacaa
20881	ttacgatatg	cgggtcatat	tgtattaatg	ggtatagatg	gattacttat	attgctaata
20941	gtggacaacg	tcgttatata	gcgacaggag	aggtagacaa	ggcaggtaat	agaataagta
21001	gttttggtta	gttttagcacg	atttagtatt	tacttagaat	aaaaattttg	ctacattaat
21061	tatagggaat	cttacagtta	ttaaataact	atttggatgg	atgttaatat	tcctatacac
21121	tttttaacat	ttctctcaag	atttaaatgt	agataacagg	caggtagcttc	ggtagcttgc
21181	tattttttta	tggtatagct	agccttcggg	ctagtttttt	gttatgatgt	gttacacatg
21241	catcaactat	ttacatctat	ccttggtcac	ccaagcatgt	cactggatgt	tttttcttgc
21301	gatagagagc	atagttttca	tactactccc	cgtagtatat	atgacttttag	cattcccgtg
21361	taacagttta	cgggggtgctt	ttatgttata	attgctttta	tatagtagga	gtgaactata
21421	tagccgggca	gaggccatgt	atctgactgt	tggtcccaca	ggagacatct	tccttgcat
21481	cactcgatac	atatacttta	acaacataga	aatgttacat	tcgctataac	cgtatcttaa
21541	tcgatacggg	tatatatttt	cccctacaac	caacaaaacc	acagatccta	ttaatttagg
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21661	caaacgcttg	tggaaaagct	aaaagggtta	aaatgacaaa	aaccttgata	caacagtgtt
21721	tttggacgct	cgtgtacgtt	agagaatgac	cggtttacca	tcatacaagg	gtgggattaa
21781	cttgtggtta	aaagccttta	atatcagttg	ttacaaaagga	ttttagcgt	ctttaaaaat
21841	aaaaaagggc	agaaaaaggg	cagatacctt	ttagtacaca	agtttttcta	atttttgctc
21901	taactctctg	tccattttct	ctgttacatg	tgtatacacc	tttatagtcg	ttttttcatc
21961	tgatgttcct	actcttttca	taattgcttt	taacgatata	ttcattttccg	ccaataaaact
22021	tatgtgtgta	tgccttagtg	tgtgagtagt	aactttttta	tttatattta	atgattctgc
22081	agctgaggac	aatcgtttgt	ttatcctact	gccttgcata	ggatttcctt	ggcaagtgtg
22141	gaatataaac	cctctatcaa	catagcttgg	ttcccattgt	tgcacttttt	tattttctaa
22201	cattattttt	ttcaatacat	ttgctatcct	tgaattgatg	gcgatttttc	ttcctgaacc
22261	tgcggctcta	gtagtatcct	tgtgaccaa	tccagcatta	catttgattc	tgtgaatagt
22321	gccattaata	gcgatcggtt	tatttttgag	gtcaacatct	ttaacttgga	gagctaataa
22381	ctcacctatg	cgcatacctg	ttaaagcttg	aacttctaca	gccccagcaa	ctaaaatacg
22441	agctctatac	tgcagtgtat	tatcgttcag	tataaaaatcg	cgtatctgta	ttacctgttc
22501	catctctaaa	tagttataca	ttttcgcttc	ttctttttct	atatcttcta	tcgtcttact
22561	cttcttttgt	agtgtgacgc	tatttaatat	gtgttcggtt	ggataaattgt	aaaatttaac
22621	ggcgtattta	atagcttctt	tcatatgtcc	aagttgacgc	tttacctgat	ttgcagaata
22681	tacgtttgat	aatttggtta	taaatgtttg	catgtacttt	gtatcaattt	tgtttaaaag
22741	taaattttga	gaactgttct	ttttgatgtt	tttgattcct	gttttcaaat	tatcaagcgt
22801	cgttacttta	aagccagatg	tttttatatg	atattcaagc	cattcatcta	ataacgcgtg
22861	aaaagtcaaa	gttttttaatt	cgcttgacga	cttggtgttt	agtttttctt	ttattttttc
22921	ttctaaacga	aacattgcct	ctttttgcga	ttgctttgta	ttcttattca	agacaacact
22981	tacacgtttc	catttatctg	tatacggatc	tttgattttc	tcgtagtatc	tatacttcgt
23041	ttcattgttc	ttattttttaa	atttttcaaa	ccacatttta	catccctcct	caaaattggc
23101	aaaaaataat	aagggtaggc	gggctaccca	tgaaaattgt	ataaaaaaag	acgcctgtat
23161	aaaatacaga	cgccacttat	aattataaga	ttacatgggt	aattaccaaa	aatggtaacg
23221	aatatatacg	tgttttaaag	gataaacctt	taatatatta	aaattatatc	atcttatatc
23281	agggatctgc	aatatattat	tattaattct	atttatcagt	aacataatat	ccgaagaatc
23341	tattactgga	tttttaattt	tttggggtaa	aacttttctt	atgcgaaact	tactaatcgg
23401	ctggaaagaa	tttatgcaag	cgtaactatt	accttttaat	ttttttacct	tatcaattgc
23461	tgatactatg	ttattaatgt	ttctgtcaat	tttattttaa	ttattttcaa	tttctaaact
23521	atcagatata	aattcaataa	aataatcttt	agtgatgaat	tctgtgttgt	ttttttggta
23581	ttttttatcg	aaaacttctt	ttaatatagc	tgaattattt	tgcgcgctaa	ttaaatttaa
23641	aaacaatctt	aaataatact	cccatttcaa	atcaaaaattc	atcttttaaat	actttttgtt
23701	ttcttttagag	gataagggaa	taacattttac	tatatccctcc	gtattagaat	cattttttatt

Figure 2I

23761	catcactatt	gcaaagtgtg	aattagaaaa	ttctttatta	acgtttatac	cgaaatctac
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23881	aaatctcttg	agtaaatagt	gaatatctga	atctaacttt	ttaaattttg	gatttccaga
23941	agtttttaat	ttattaatgc	gtttttctat	attatgcgtc	atcatttctc	ctttattctc
24001	gctcacactc	tcaccaccat	tcaacgtcta	cacttgtagg	cgttttttga	ttagtaaaat
24061	cataatgaat	cttcttttgt	taacttatcg	ccatctattt	tttgtgaaat	aaattccaag
24121	tattttacgcg	cattatgtga	cgataaatct	ttaggtaact	cataagtga	tggttgatta
24181	ccactagtta	aaacttcata	tactatagtt	tcttttttta	ttttgcaatt	agttattttc
24241	attataaact	ccttttaaac	actgctgaaa	tagacgtctt	tttcaaataa	gcatgattaa
24301	tactttaatt	ctttaatcca	catatattta	aaagtgaggt	agtaggtaat	aaatataaga
24361	cttaaagtta	agattgcttt	tttcatgtca	atcttctctt	tgtttatatt	tatattaaag
24421	cgctaaatat	acgttattta	tcacaatata	actttgccc	ttactttaat	atcactaaac
24481	gaagcgactt	tgatatcatc	atacttcgga	tttagagata	ccaaattaat	atagtcttcg
24541	catatatcta	cacgcttgat	aagacttact	ccatctaata	caacgagtgc	aattgtacca
24601	tctttaatat	aatcttcttt	cttaataaaa	gcgtatgttc	cttgttttta	cataggttcc
24661	attgaatcac	cattaaactaa	aatacaaaaa	tcagcatttg	atggcgtttg	gtcttcttta
24721	aaaaatactt	cttcatgcaa	tatgtcatca	tataattctt	ctcctatgcc	agcaccagtt
24781	gcaccacatg	caatatacga	tactagttta	gactctttat	attcatctat	agaagtgact
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25021	gtttttagata	ataagaataa	tttatgttgg	tctggagaag	accttccatt	aacatactgg
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25201	ttttgcattg	gtaatgcctc	cttgaaattc	attatatagg	aaggggaaata	aaaatcaata
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26401	gatgtcctac	cagctattcg	caaacacggt	atatacgcaa	cagacaatgt	aattgaacaa
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26521	caaaacttac	ttttacaaca	gcaagtagaa	gttaacaaac	caaaaagtatt	attcgctgac
26581	tcggtagctg	gtagtataaa	ttcaataact	gttgaggagac	tagcgaaaat	acttaaacaa
26641	aacgggtgtg	atataggaca	aaacagattg	ttcaaattgg	taagaaataa	tggtatatctc
26701	attaaaaaga	gtggagaaa	ttataactta	ccaactcaaa	agagtatgga	tctaaaaatc

Figure 2J

26761	ttggatatca	aaaaacgaat	aattaataat	ccagatgggt	caagtaaagt	atcacgtaca
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26881	acatcttaaa	aggaggaaca	caatggaaca	aatcacatta	accaaagaag	agttgaaaga
26941	aattatagca	aaagaagtta	gagaggctat	aaatggcaag	aaaccaatca	gttcagggttc
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27181	ccatattaga	aaattaacat	tatcaatttt	tggagtgcga	cttaattcag	acttgagtga
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27301	ctatgaaaag	agagtttcag	aattaactat	cgatgatttc	gaataaagga	ggaacaacaa
27361	atgttataaa	aatttagaat	tgcgaaagaa	aaaaataaat	taaaactcaa	attactcaag
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29521	cagacgaaca	ggacagacta	attaacttag	tcatgaaatg	gtaggagggtc	gctatgaagc
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29641	ctgataacaa	ttcagatatt	agttactcca	caaatagaaa	tagagctagg	gagtttaacg
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Figure 2K

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29881	tataaatttg	cagtatacgg	aaaaattggc	tcaggaaaaa	ccacgtttgc	tacaagagat
29941	aaagacgctt	tcgtcattga	cattaacgaa	ggtggaacaa	cgtttactga	cgaaggatca
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30121	aaacttagag	atatgacatt	gaatgatgtg	atgaaaaata	agtctaaaaa	accaacgttt
30181	aatgattggg	gagaagttgc	tgaacgaatt	gtcagtatgt	acagattaat	aggaaaactt
30241	caagaagaat	acaaaattcca	ctttgttatt	acaggtcatg	aaggtatcaa	caaagataaa
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30361	aaagctatta	cttctcaaag	tgatgtgtta	gctagggcaa	tgattgaaga	atttgatgat
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30721	caatgataga	gaaaatagat	atttcacaat	cgtatttgaa	aatgatgaag	gcaaacataa
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Figure 2L

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33181	ccctattgat	aattctgtca	atacccttat	tgacgcaaat	gtcaaagaga	atattacaag
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34921	caaccgaaat	tcgaattatt	acaaaaacta	gataaacaac	gaaagattga	atatattgca
34981	gacttcgcgt	tatatctcga	tggcaaaactg	attgaagtta	tcgacattaa	aggatatgcca
35041	accgaagtag	caaaaactta	agctaagatt	ttcagacata	aatacagaaa	cataaaactc
35101	aattggatat	gtaaagcgcc	taagtataca	ggtaaaaacat	ggattacgta	cgaggaatta
35161	attaagcaaa	gacgagaacg	caaaaagagaa	atgaagtgat	ctaattgcaac	aacaagcata
35221	tataaatgca	acgattgata	taaggatacc	tacagaagtt	gaatatcagc	atthttgatga
35281	tgtggataaaa	gaaaaagaag	cgctggcaga	ttacttatat	aacaatcctg	acgaaatact
35341	agagtatgac	aattttaaaaa	ttagaaacgt	aaatgtagag	gtggaataaaa	tgggaggtgt
35401	tgtaatcatt	aataataaac	catataaatt	taacaatttt	gaaaaaagaa	ataatggcaa
35461	agcgtgggat	aaatgctgga	attgtttcta	aacgtgttag	aggttggttg	gagttttcag
35521	aagctttaga	cgcgccttat	ggcatgcacc	taaaagaata	tagagaaatg	aaacaaatgg
35581	aaaagattaa	acaagcgaga	ctcgaacgtg	aattggaaag	agagcgaaag	aaagaggctg
35641	agctacgtaa	gaagaagcca	catttgttta	atgtacctca	aaaacattca	cgtgatccgt
35701	actggttcga	tgtcacttat	aaccaaattg	tcaagaaatg	gagtgaagca	taatgagcat

Figure 2M

35761	aatcagtaac	agaaaaagtag	atatgaacaa	aacgcaagac	aacgttaagc	aacctgcgca
35821	ttacacatac	ggcgacattg	aaattataga	ttttattgaa	caagttacgg	cacagtaccc
35881	accacaatta	gcatttcgcaa	taggtaatgc	aattaaatac	ttgtctagag	caccgttaaa
35941	gaatgggtcat	gaggatttag	caaaggcgaa	gttttacgtc	gatagagtat	ttgacttggtg
36001	ggagtgatga	ccatgacaga	tagcggacgt	aaagaatact	taaaacattt	tttcggctct
36061	aagagatatc	tgtatcagga	taacgaacga	gtggcacata	tccatgtagt	aaatggcact
36121	tattactttc	acggtcatat	cgtgccaggt	tggcaagggtg	tgaaaaagac	atttgataca
36181	gcggaagagc	ttgaaacata	tataaagcaa	agtgatttgg	aatatgagga	acagaagcaa
36241	ctaactttat	tttaaaaggg	cggaaacaat	gaaaatcaaa	attgaaaaag	aaatgaattt
36301	acctgaactt	atccaatggg	cttgggataa	ccccaagtta	tcaggtaata	aaagattcta
36361	ttcaaatgat	gttgagcgca	actgttttgt	gacttttcat	gttgatagca	tcttatgtaa
36421	tgtgactgga	tatgtatcaa	ttaacgataa	atttactgtt	caagaggaga	tataacaatg
36481	aaaatcaaaag	ttaaaaaaga	aatgagatta	gatgaattaa	ttaaatgggc	gcgagaaaaat
36541	ccgatctat	cacaaggaaa	aatatttttt	tcaacaggat	ttagtgtatg	attcgttcgt
36601	tttcatccaa	atacaaataa	gtgttcgacg	tcaagtttta	ttccaattga	tatcccttc
36661	atagttgata	ttgaaaaaga	agtaacggaa	gagactaagg	ttgatagggt	gattgaatta
36721	ttcgagattc	aagaaggaga	ctataactct	acactatatg	agaacactag	tataaaaagaa
36781	tgtttatatg	gcagatgtgt	gcctaccaa	gcattctaca	tcttaaacga	tgacctaact
36841	atgacgttaa	tctggaaaga	tggggagttg	ctagtatgat	gttgaaattt	aaagcttggg
36901	ataaagataa	aaaagttatg	agtattattg	acgaaatcga	ttttaatagt	gggtacattt
36961	tgatttcaac	aggttataaa	agtttcaatg	aagtaaaact	attacaatac	acaggattta
37021	aagatgtgca	cgggtgtggag	atztatgaag	gggatattgt	tcaagattgt	tattcgagag
37081	aagtaagttt	tatcgagttt	aaagaaggag	ccttttatat	aacttttagc	aatgtaactg
37141	aattactaag	tgaaaatgac	gatattattg	aaattggttg	aaatattttt	gaaaatgaga
37201	tgctattgga	ggttatgaga	tgacgttcac	cttatcagat	gaacaatata	aaaatctttg
37261	tactaactct	aacaagttat	tagataaact	tcacaaagca	ttaaaagatc	gtgaagagta
37321	caagaagcaa	cgagatgagc	ttattgggga	tatagcgaag	ttacgagatt	gtaacaaaga
37381	tctagagaag	aaagcaagcg	catgggtag	gtattgcaag	agcgttgaaa	aagatttaaat
37441	aaacgaattc	ggtaacgatg	atgaaagagt	taaattcgga	atggaattaa	acaataaaaat
37501	ttttatggag	gatgacacaa	atgaataatc	gcgaaaaaat	cgaacagtcc	gttatttagtg
37561	ctagtgcgta	taacggtaat	gacacagagg	ggttgctaaa	agagattgag	gacgtgtata
37621	agaaagcgca	agcgtttgat	gaaatacttg	agggaaatgac	aaatgctatt	caacattcag
37681	ttaaagaagg	tattgaactt	gatgaagcag	tagggattat	ggcagggtcaa	gttgtctata
37741	aatatgagga	ggaataggaa	aatgactaac	acattacaag	taaaactatt	taaaaaaat
37801	gctagaatgc	ccgaacgaaa	tcataagacg	gatgcagggt	atgacatatt	ctcagctgaa
37861	actgtcgtac	tccaaccaca	agaaaaagca	gtgatcaaaa	cagatgtagc	tgtgagtata
37921	ccagagggct	atgtcggact	attaactagt	cgtagtgggtg	taagtagtaa	aacgtattta
37981	gtgattgaaa	caggcaagat	agacgcggga	tatcatggca	atttagggat	taatatacaag
38041	aatgatgaag	aacgtgatgg	aatacccttt	ttatatgatg	atatagacgc	tgaattagaa
38101	gatggattaa	taagcatttt	agatataaaa	ggtaactatg	tacaagatgg	aagaggcata
38161	agaagagttt	accaaataca	caaaggcgat	aaactagctc	aattgggttat	cgtgcctata
38221	tggacaccgg	aactaaagca	agtggaggaa	ttcgaaaagt	tttcagaacg	tggagcaaaa
38281	ggcttcggaa	gtagcggagt	gtaaagacat	cttagatcga	gttaaggagg	ttttggggaa
38341	gtgacgcaat	acttagtcac	aacattcaaa	gattcaacag	gacgaccaca	tgaacatatt
38401	actgtggcta	gagataatca	gacgtttaca	gttattgagg	cagagagtaa	agaagaagcg
38461	aaagagaagt	acgaggcaca	agttaaaaaga	gatgcagtta	ttaaagtggg	tcagttgtat
38521	gaaaatataa	gggagtgtgg	gaaatgacgg	atgttaaaat	taaaactatt	tcaggtggag
38581	tttattttgt	aaaaacagct	gaaccttttg	aaaaatatgt	tgaaagaatg	acgagtttta
38641	atggttatat	ttacgcaagt	actataatca	agaaaccaac	gtatattaaa	acagatacga
38701	ttgaatcaat	cacacttatt	gaggagcatg	ggaaatgaat	cagctgagaa	ttttattaca

Figure 2N

38761	tgacggtagt	agtttgatat	tacatgaaga	tgaattat	aacgaaatag	tatttgttt
38821	ggacaatttt	agaaatgatg	atgactat	aacgatagaa	aaagattatg	gcagagaact
38881	tgtattgaac	aaagggtata	tagttgggat	caatgttgag	gaggcagatg	atgattaaca
38941	tacctaaaat	gaaattcccg	aaaaagtaga	ctgaaataat	caaaaaatat	aaaaataaag
39001	cacctgaaga	aaaggctaag	attgaagatg	attttattaa	agaaattaaa	gataaagaca
39061	gtgaatttta	cagtcctacg	atggctaata	tgaatgaata	tgaattaagg	gctatgttaa
39121	gaatgatgcc	tagtttaatt	gatactggag	atgacaatga	tgattaaaaa	acttaaaaaat
39181	atggatgggt	tcgacatctt	tattgttggg	atactgtcat	tattcgggtat	attcgcattg
39241	ctacttggtt	tcacattgcc	tatctataca	gtggctagtt	accaacacaa	agaattacat
39301	caaggaacta	ttacagataa	atataacaag	agacaagata	aagaagacaa	gttctatatt
39361	gtattagaca	acaaacaagt	cattgaaaat	tccgacttat	tattcaaaaa	gaaatttgat
39421	agcgcagata	tacaagctag	gttaaaagta	ggcgataagg	tagaagttaa	aacaatcggg
39481	tatagaatac	acttttttaa	tttatatccg	gtcttatacg	aagtaaagaa	ggtagataaa
39541	caatgattaa	acaaatacta	agactattat	tcttactagc	aatgtatgag	ttaggtaagt
39601	atgtaactga	gcaagtgtat	attatgatga	cggctaata	tgatgtagag	gcgccgagtg
39661	attacgtctt	tcgagcggag	gtgagtgaat	aatgagaata	tttatttatg	atttgatcgt
39721	tttgctgttt	gctttcttaa	tatccatata	tattattgat	gatggagtga	taataaatgc
39781	attaggaatt	tttggtatgt	ataaaaattat	agattccttt	tcagaaaata	ttataaagag
39841	gtagataaaa	atgaacgagc	aaataatagg	aagcatatat	actttagcag	gaggtgttgt
39901	gctttattca	gttaaagaga	tttttaggta	ttttacagat	tctaacttac	aacgtaaaaa
39961	aatcaattta	gaacaaatat	atccgatata	tttagattgt	tttaaaaaag	ctaaaaagat
40021	gattggagct	tatattattc	caacagaaca	gcatgaattt	ttagattttt	ttgatattga
40081	agtctttaat	aatttagata	agcaaagtaa	aaaagcgtat	gaaaatgtta	ttggatttag
40141	acaaatgatt	aatttatcaa	atagagttaa	ggcaatggaa	gattttaaga	tgagtttcaa
40201	caatgaattt	agtacaaatc	agattttttt	taatccttct	tttgttatgg	aaacaattgc
40261	tattataaat	gaatatcaaa	aagatatatc	ttatttataa	aatataatta	ataaaatgaa
40321	tgaaaataga	gcttataatc	atattgatag	ttttatcact	tcagagtacc	gacgaaaaat
40381	aaacgattat	aatctttatc	ttgataaatt	tgaagaacag	tttagtcaaa	agttttaa
40441	aaacagaact	tcgataaaa	aaagaattat	tattaattta	aacaagagga	gattttaa
40501	atgtggatta	ctatgactat	tgtatttgct	atattgctat	tagtttgat	cagtattaat
40561	agtgatcgtg	caagagagat	acaagcactt	agatatatga	atgattatct	acttgatgaa
40621	gtagttaaaa	ctaaaagggt	caacgggtta	gaagaataca	ggattgaatt	gaagcgaatg
40681	aataacgata	ttaaaaagta	gtttatatta	tcggagggtat	tgcattgaat	gataaagatt
40741	gagaaacacg	atatcaaaaa	gcttgaagaa	tacattcagc	acatcgataa	ctatcgaaga
40801	gagttgaaga	tgcgagaata	tgaattactt	gaaagtcag	aaccagataa	tgccgggagct
40861	ggcaaaagta	atttgccggg	taacccgatt	gaacgatgtg	caataaagaa	gtttagtgat
40921	aacagggtaca	atacatatag	aaatatagtt	aacgggtgtg	atagattgat	aggtgaaagt
40981	gatgaggata	cgcttgagtt	attaagggtt	agatatggg	attgtcctat	tggttggtat
41041	gaatgggaag	atatagcaca	ttactttggt	acaagtaaga	caagtatatt	acgtagaagg
41101	aatgcactga	tcgataaagt	agcaaaagt	attgggttatg	tgtagcggac	ttttacccta
41161	tgtaagtcgg	cattaaaaaca	gtttattatg	ttagtatcag	attaatattt	aaagttatta
41221	aatgctaata	cgacgcagta	acaagaggcg	catcactatg	tgatgtgtct	ttttatttat
41281	gaggtatgaa	catgttcaaa	ctaattgtaa	atacattact	acacatcaag	tatagatgag
41341	tcttgatact	acttaagtta	tataagggtga	aacattatga	tgactaaaga	cgaacgtata
41401	cgattctata	agtctaaaga	atggcaaata	acaagaaaaa	gagtgctaga	aagagataat
41461	tatgaatgtc	aacaatgtaa	gagagacggc	aagtttaacga	catatgacaa	aagcaagcgt
41521	aagtcggttg	atgtagatca	tatattatcg	ctagaacatc	atccggagtt	tgctcatgac
41581	ttaaacaatt	tagaaacact	gtgtattaaa	tgtcacaaca	aaaaagaaaa	gagatttata
41641	aaaaaagaaa	ataaatggaa	agacgaaaaa	tggtaaatac	ccccgggtca	aaaaaatcaa
41701	aagcga					

Phage: Bacteriophage 77. Minimal ORF size: 33 a.a. Orfs "with" RBS. Number of ORFs: 99.

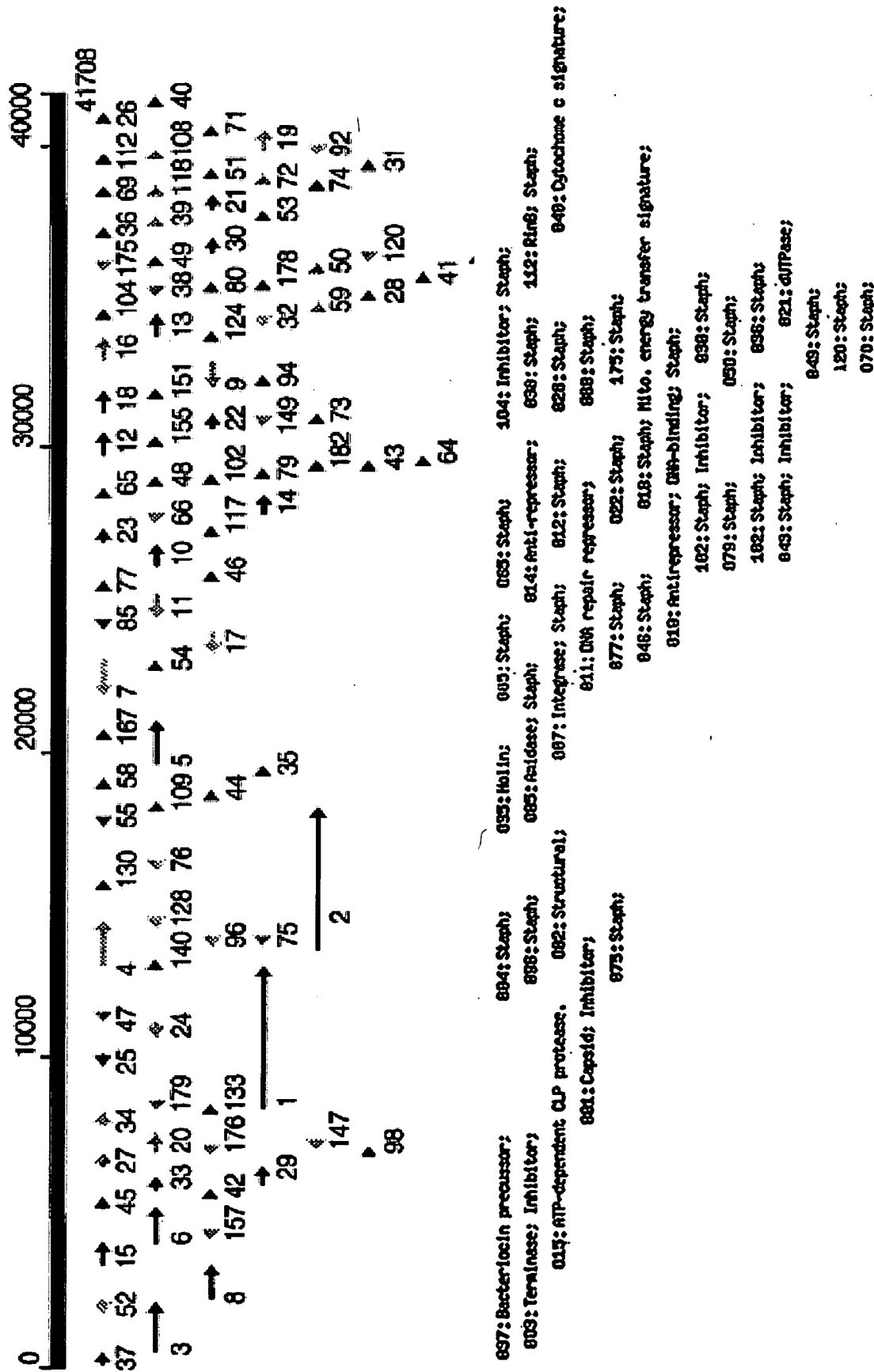


Figure 4

SEQ ID NO:4 (P77ORF104)

```
1      atggtaacca aagaattttt aaaaactaaa cttgagtgtt cagatatgta cgctcagaaa
61     ctcatagatg aggcacaggg cgatgaaaat aggttgtagc acctatttat ccaaaaactt
121    gcagaacgtc atacacgccc cgctatcgtc gaatattaa
```

SEQ ID NO:5 (P77ORF104)

```
1      MVTKEFLKTK LECSDMYAQK LIDEAQGDEN RLYDLFIQKL AERHTRPAIV EY
```

Figure 5

Predicted tryptic peptide masses of conceptual ORF in Contig 1383:

1	MGGGQSIMKqfkSIINTSQDFEKrIEKikK	30
31	evindpdvkQFLEAHraeltnamidedlnv	60
61	lgeykDQQKhydghkFADCPNFVK <u>ghvpel</u>	90
91	<u>vvdnnr</u> IKirYLQCPCKikyDEERfeaeli	120
121	tshhmqrDTLNAKlkDIYMNHRdrldVAMA	150
151	ADDICTAITNGEQVKglylygpfgtgkSFI	180
181	LGAIANQLKskKvr <u>STIIYLPEFIR</u> tlkGG	210
211	FKdgsfekKlhrVReanilmddigaeevt	240
241	pwvrDEVIGPLLHYRmvhelptffssnfdy	270
271	selehhlamtrDGEEKtkAARiierVK <u>sls</u>	300
301	<u>tpyflsgenfr</u> NN	

Tryptic peptide fragment:

GHVPELYVDNNR	Predicted peptide mass MH+ = 1413.538
STIIYLPEFIR	Predicted peptide mass MH+ = 1352.6221
SLSTPYFLSGENFR	Predicted peptide mass MH+ = 1618.7923

Figure 6A

Optimal global alignment

	Sequence 1 SEQ ID NO: 6	DnaC nucleotide <i>B. subtilis</i> (1471 letters)	
	Sequence 2 SEQ ID NO: 7	DnaC nucleotide <i>S. aureus</i> (1513 letters)	
seq1	1 AT-GACAGACCTTCTGAATGACCGGCTTC--CTCCGCAAAATATAGAAGCCGAACAAGC		56
seq2	1 ATGGATAGA---ATGTATGAGCAAAATCAAATGCCGCATAACAATGAAGCTGAACAGTC		56
seq1	57 CGTGTTAGGCGCTATTTTTTTTACAGCC-GTCTGCTTTAACACTGGCTTCAGAAGTATTGA		115
seq2	57 TGTCTTAGGTTCAATTATTATAGATCCAGAATTGATTAATACT-ACTCAGGAAGTTTTGC		115
seq1	116 TTCCAGATGATTTCTATAGAATGTCCCACCAAAAAATCTATAATGCGATGCTGGTGCTCG		175
seq2	116 TTCCTGAGTCGTTTTATAGGGGTGCCCATCAACATATTTTCCGTGCAATGATGCACTTAA		175
seq1	176 GTGACCGAGGTGAACCGGTTGATCTGGTGACA--GTTACATCAGAGCTTGCGAACACAGA		233
seq2	176 ATGAAGATAATAAAGAAATTGATGTTGTAACATTGATGGATC--AATTATCGACGGAAGG		233
seq1	234 CCTGCTGGAAGAAGTAGGCGGTATTTTCATAT-TTG-ACAGATATCGCAAACCTCGGTGCCG		291
seq2	234 TACGTTGAATGAAGCGGGTGGCCCGCAATATCTTGAGAGTTATCTACAAAT--GTACCA		291
seq1	292 ACAGCGGCTAACATAGAATATTACGCGAAAATCGTTGAGGAAAAATCGATT-CTTCGCCG		350
seq2	292 ACGACGCGAAATGTTTCAATATTACTGATATCGTT-TCTAAGCATGCATTAAAACGTAG		350
seq1	351 ATTAATCAGAACTGCGACAACGATTGCTCAAGACGGGTATACCCGTGAGGATGAGGTGCA		410
seq2	351 ATTGATTCAAACCTGCAGATAGTATTGCCAATGATGGATATAATGATGAACCTGAACCTAGA		410
seq1	411 --GGATTTACTCAGTGAAGCGGAAAAACGATTATGGAAGTGGCA-CAGCGCAAAACAC		467
seq2	411 TGCGATTT--TAAGTGATGCAGAACGTGCAATTTTAGAGCTATCATCTTCTCGTGAAAGC		468
seq1	468 GAGTGCCTTCCAAAATATTAAGGACGTCTTGTCCAGACCTATGATAATATC-GAACAGC		526
seq2	469 GA-TGGCTTTAAAGACATTCGAGACGTCTTAGGACAAGTGTATGA-AACAGCTGAAGAGC		526
seq1	527 TTTACAATCGAAAAGGTGAT--ATCA-CGGGAATTCCAACAGGGTTTACGGAGCTTGACC		583
seq2	527 TT---GATCAAAATAGTGGTCAAACACCAGGTATACCTACAGGATATCGAGATTAGACC		583
seq1	584 GGATGACTGCGGGTTTCCAGCGCAACGACTTGATCATTGTGGCTGCCCCGTCTTCAGTAG		643
seq2	584 AAATGACAGCAGGGTTCAACCGAAATGATTTAATTATCCTTGACGCGCTCCATCTGTAG		643
seq1	644 GGAAAACAGCCTTTGCCCTGAACATCGCACAAAACGTGGCGAC----GAAGACCGATG-A		698
seq2	644 GTAAGACTGCGTTCGCACCTTAATATTGCACAAAAAGTTGCAACGCATGAAGA--TATGTA		701

Figure 6B

seq1	699	GAGCGTAGCGATTTTTCAGTCTTGAGATGGGTGCCGAGCAGCTCGTTATGCGTATGCTCTG	758
seq2	702	TACAGTTGGTATTTTCTCGCTAGAGATGGGTGCTGATCAGTTAGCCACACGTATGATTTG	761
seq1	759	TGCCGAGGGAAATATCAATGCCCAGAATC---TCCGTACAGGTAACCTGACCGAAGAGGA	815
seq2	762	TAGTTCTGGAAATGT---TGACTCAAACCGCTTAAGAACGGGTACTATGACTGAGGAAGA	818
seq1	816	TTGGGGCAAGCTGACGATGGCAATGGGAAGCCTATCGAACAGCGGGATTTACATCGATGA	875
seq2	819	TTGGAGTCGTTTTACTATAGCGGTAGGTAAATTATCACGTACGAAGATTTTATTGATGA	878
seq1	876	TACACCGGGTATTCGAGTGAGTGAAATCCGTGCCAAGTGCCGCCGCTTGAAGCAGGAAAG	935
seq2	879	TACACCGGGTATTCGAATTAATGATTTACGTTCTAAATGTCGTCGATTAAAGCAAGAACA	938
seq1	936	CGGGCTGGGCATGATTTTGATCGATTACCTGCAATTGATTACAGGAAGCGGT---CGTTC	992
seq2	939	TGGCTTAGACATGATTGTGATTGACTACTTACAGTTGATTCAAGGTAGTGGTTCACGTGC	998
seq1	993	AAAGGACAACCGTCAGCAGGAAGTATCTGAAATTTCCCGTGAAGTGAAGTCGATTGCGAG	1052
seq2	999	GTCCGATAACAGACAACAGGAAGTTTCTGAAATCTCTCGTACATTAAAGCATTAGCCCCG	1058
seq1	1053	GGAGCTGCAAGTCCCTGTTATCGCGCTTTCTCAGCTTTCCAGGGGTGTTGAGCAGCGTCA	1112
seq2	1059	TGAATTAGAATGTCCAGTTATCGCATTAAAGTCAGTTATCTCGTGGTGTGTAACAACGACA	1118
seq1	1113	GGATAAACGTCCGATGATGTCTGATATCCGGGAATCAGGAAGTATCGAGCAGGACGCGGA	1172
seq2	1119	AGATAAACGTCCAATGATGAGTGATATTCTGTAATCTGGTTCGATTGAGCAAGATGCCGA	1178
seq1	1173	TATTGTCGCGTTTCCTTTATCGTGATGACTACT-----ATGA	1208
seq2	1179	TATCGTTGCATTCTTATACCGTGATGATTACTATAACCGTGGCGGCGATGAAGATGATGA	1238
seq1	1209	CAAAGA-----AACCGA--GAATAAAA--ATATTATCGAAATTATTAT	1247
seq2	1239	CGATGATGGTGGTTTCGAGCCACAAACGAATGATGAAAACGGTGAAATTGAAATTATCAT	1298
seq1	1248	CGCCAAACAGCGTAACGGCCCGGTAGGAACCGTGTCTCTTGC-GTTCGTAAAAGAATACA	1306
seq2	1299	TGCTAAGCAACGTAACGGTCCAACAGGCACAGT-TAAGTTACATTTTATGAAACAATATA	1357
seq1	1307	ACAAATTCGTCAACCTGGAACGGCGTTTTGATGACGCAGGCGTTCCGCCCGGCGCA	1362
seq2	1358	ATAAATT---TACCGATATCG--ATTATGCACATGCAGATATGATG-----TAA	1401

Figure 6C

SEQ ID NO:6 DnaC nucleotide *B. subtilis*

```

1  ATGACAGACC TTCTGAATGA CCGGCTTCCT CCGCAAAATA TAGAAGCCGA
51  ACAAGCCGTG TTAGGCGCTA TTTTTTTACA GCCGTCTGCT TTAACACTGG
101 CTTCAGAAGT ATTGATTCCA GATGATTTCT ATAGAATGTC CCACCAAAAA
151 ATCTATAATG CGATGCTGGT GCTCGGTGAC CGAGGTGAAC CGGTTGATCT
201 GGTGACAGTT ACATCAGAGC TTGCGAACAC AGACCTGCTG GAAGAAGTAG
251 GCGGTATTTT ATATTTGACA GATATCGCAA ACTCGGTGCC GACAGCGGCT
301 AACATAGAAT ATTACGCGAA AATCGTTGAG GAAAAATCGA TTCTTCGCCG
351 ATTAATCAGA ACTGCGACAA CGATTGCTCA AGACGGGTAT ACCCGTGAGG
401 ATGAGGTCGA GGATTTACTC AGTGAAGCGG AAAAAACGAT TATGGAAGTG
451 GCACAGCGCA AAAACACGAG TGCCTTCCAA AATATTAAGG ACGTCCTTGT
501 CCAGACCTAT GATAATATCG AACAGCTTTA CAATCGAAAA GGTGATATCA
551 CGGGAATTCC AACAGGGTTT ACGGAGCTTG ACCGGATGAC TGCGGGTTTC
601 CAGCGCAACG ACTTGATCAT TGTGGCTGCC CGTCCTTCAG TAGGGAAAAC
651 AGCCTTTGCC CTGAACATCG CACAAAACGT GGCGACGAAG ACCGATGAGA
701 GCGTAGCGAT TTTCAGTCTT GAGATGGGTG CCGAGCAGCT CGTTATGCGT
751 ATGCTCTGTG CCGAGGGAAA TATCAATGCC CAGAATCTCC GTACAGGTAA
801 CCTGACCGAA GAGGATTGGG GCAAGCTGAC GATGGCAATG GGAAGCCTAT
851 CGAACAGCGG GATTTACATC GATGATACAC CGGGTATTTC AGTGAGTGAA
901 ATCCGTGCCA AGTGCCGCCG CTTGAAGCAG GAAAGCGGGC TGGGCATGAT
951 TTTGATCGAT TACCTGCAAT TGATTCAGGG AAGCGGTCGT TCAAAGGACA
1001 ACCGTCAGCA GGAAGTATCT GAAATTTCCC GTGAAGTGAA GTCGATTGCG
1051 AGGGAGCTGC AAGTCCCTGT TATCGCGCTT TCTCAGCTTT CCAGGGGTGT
1101 TGAGCAGCGT CAGGATAAAC GTCCGATGAT GTCTGATATC CGGGAATCAG
1151 GAAGTATCGA GCAGGACGCG GATATTGTCG CGTTCCTTTA TCGTGATGAC
1201 TACTATGACA AAGAAACCGA GAATAAAAAT ATTATCGAAA TTATTATCGC
1251 CAAACAGCGT AACGGCCCCG TAGGAACCGT GTCTCTTGCG TTCGTAAAAG
1301 AATACAACAA ATTTCGTCAAC CTGGAACGGC GTTTTGATGA CGCAGGCGTT
1351 CCGCCCGGCG CA

```

Figure 6D

SEQ ID NO:7 DnaC nucleotide *S. aureus*

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1   ATGGATAGAA TGTATGAGCA AAATCAAATG CCGCATAACA ATGAAGCTGA
51  ACAGTCTGTC TTAGGTTCAA TTATTATAGA TCCAGAATTG ATTAATACTA
101 CTCAGGAAGT TTTGCTTCCT GAGTCGTTTT ATAGGGGTGC CCATCAACAT
151 ATTTTCCGTG CAATGATGCA CTTAAATGAA GATAATAAAG AAATTGATGT
201 TGTAACATTG ATGGATCAAT TATCGACGGA AGGTACGTTG AATGAAGCGG
251 GTGGCCCGCA ATATCTTGCA GAGTTATCTA CAAATGTACC AACGACGCGA
301 AATGTTTCAGT ATTATACTGA TATCGTTTCT AAGCATGCAT TAAAACGTAG
351 ATTGATTCAA ACTGCAGATA GTATTGCCAA TGATGGATAT AATGATGAAC
401 TTGAACTAGA TGCGATTTTA AGTGATGCAG AACGTCGAAT TTTAGAGCTA
451 TCATCTTCTC GTGAAAGCGA TGGCTTTAAA GACATTCGAG ACGTCTTAGG
501 ACAAGTGTAT GAAACAGCTG AAGAGCTTGA TCAAAATAGT GGTCAAACAC
551 CAGGTATACC TACAGGATAT CGAGATTTAG ACCAAATGAC AGCAGGGTTC
601 AACCGAAATG ATTTAATTAT CCTTGCAGCG CGTCCATCTG TAGGTAAGAC
651 TGCGTTCGCA CTTAATATTG CACAAAAAGT TGCAACGCAT GAAGATATGT
701 ATACAGTTGG TATTTTCTCG CTAGAGATGG GTGCTGATCA GTTAGCCACA
751 CGTATGATTT GTAGTTCTGG AAATGTTGAC TCAAACCGCT TAAGAACGGG
801 TACTATGACT GAGGAAGATT GGAGTCGTTT TACTATAGCG GTAGGTAAAT
851 TATCACGTAC GAAGATTTTT ATTGATGATA CACCGGGTAT TCGAATTAAT
901 GATTTACGTT CTAAATGTCG TCGATTAAAG CAAGAACATG GCTTAGACAT
951 GATTGTGATT GACTACTTAC AGTTGATTCA AGGTAGTGGT TCACGTGCGT
1001 CCGATAACAG ACAACAGGAA GTTTCTGAAA TCTCTCGTAC ATTAAAAGCA
1051 TTAGCCCGTG AATTAGAATG TCCAGTTATC GCATTAAGTC AGTTATCTCG
1101 TGGTGTTGAA CAACGACAAG ATAAACGTCC AATGATGAGT GATATTCGTG
1151 AATCTGGTTC GATTGAGCAA GATGCCGATA TCGTTGCATT CTTATACCGT
1201 GATGATTACT ATAACCGTGG CGGCGATGAA GATGATGACG ATGATGGTGG
1251 TTTTCGAGCCA CAAACGAATG ATGAAAACGG TGAAATTGAA ATTATCATTG
1301 CTAAGCAACG TAACGGTCCA ACAGGCACAG TTAAGTTACA TTTTATGAAA
1351 CAATATAATA AATTTACCGA TATCGATTAT GCACATGCAG ATATGATGTA
1401 A

```

Figure 6E

Sequence 1	SEQ ID NO: 8	DnaC <i>B. subtilis</i> (490 letters)	
Sequence 2	SEQ ID NO: 9	DnaC <i>S. aureus</i> (503 letters)	
seq1	1	MTDLLNDRLPQNIEAEQAVLGAI FLQPSALT LASEVLIPDDFYRMSHQKIYNAMLVLGD	60
seq2	1	MDRMYEQNQMPHNNEAEQSVLGSIIIDPELINTTQEVLLPESFYRGAHQHIFRAMMHLNE	60
seq1	61	RGEPVDLVTVTSELANTDLL EEVGGISYLTDIANSVPTAANIEYYAKIVEEKSILRRLIR	120
seq2	61	DNKEIDVVTLMDQLSTEGTLNEAGGPQYLAELSTNVPTTRNVQYYTDIVSKHALKRRLIQ	120
seq1	121	TATTIAQDGYTREDEVEDLLSEAEKTIMEVAQRKNTSAFQNIKDVLVQTYDNIEQLYNRK	180
seq2	121	TADSIANDGYNDELELDAILSDAERRILELSSSRES DGFKDIRDVLGQVYETAELDQNS	180
seq1	181	GDITGIPTGFTELDRMTAGFQRNDLIIVAARPSVGKTAFALNIAQNVATKTD-ESVAIFS	239
seq2	181	GQTPGIPTGYRDLQMTAGFNRNDLIILAARPSVGKTAFALNIAQKVATHEDMYTVGIFS	240
seq1	240	LEMGAEQLVMRMLCAEGNINAQNLRTGNLTEEDWGKLTAMGSLSNSGIYIDTTPGIRVS	299
seq2	241	LEMGADQLATRMICSSGNVDSNRLRTGTMTEEDWSRFTIAVGKLSRTKIFIDTTPGIRIN	300
seq1	300	EIRAKCRRLLKQESGLGMILIDYLQLIQSGS-RSKDNRQQEVSEISRELKSIARELQVPVI	358
seq2	301	DLRSKCRRLKQEHGLDMIVIDYLQLIQSGSRASDNRQQEVSEISRTLKALARELECPVI	360
seq1	359	ALSQLSRGVEQRQDKRPMSDIRESGSIEQDADIVAFLYRDDYYDK-----	404
seq2	361	ALSQLSRGVEQRQDKRPMSDIRESGSIEQDADIVAFLYRDDYYNRGGDEDDDDGGFEP	420
seq1	405	ETENKN-IEIEIIIAKQRNGPVGTVSLAFVKEYNKFNLERRFDDAGVPPGA	454
seq2	421	QTNDENGEIEIEIIIAKQRNGPTGTVKLHFMKQYNKFTDIDYAHADM-----M	466

Figure 6F

SEQ ID NO:8 DnaC *B. subtilis*

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1  MTDLLNDRLP PQNIEAEQAV LGAIFLQPSA LTLASEVLIP DDFYRMSHQK
51 IYNAMLVLGD RGEVDLVTV TSELANTDLL EEVGGISYLT DIANSVPTAA
101 NIEYYAKIVE EKSILRRLIR TATTIAQDGY TREDEVEDLL SEAEKTIMEV
151 AQRKNTSAFQ NIKDVLVQTY DNIEQLYNRK GDITGIPTGF TELDRMTAGF
201 QRNDLIIVAA RPSVGKTAFALNIAQNVATK TDESVAIFSL EMGAEQLVMR
251 MLCAEGNINA QNLRTGNLTE EDWGKLTAM GSLSNSGIYI DDTPGIRVSE
301 IRAKCRRLKQ ESGLGMLID YLQLIQGSGR SKDNRQQEVS EISRELKSIA
351 RELQVPVIAL SQLSRGVEQR QDKRPMMSDI RESGSIEQDA DIVAFLYRDD
401 YYDKETENKN IIEIIIAKQR NGPVGTVSLA FVKEYNKFVN LERRFDDAGV
451 PPGA

```

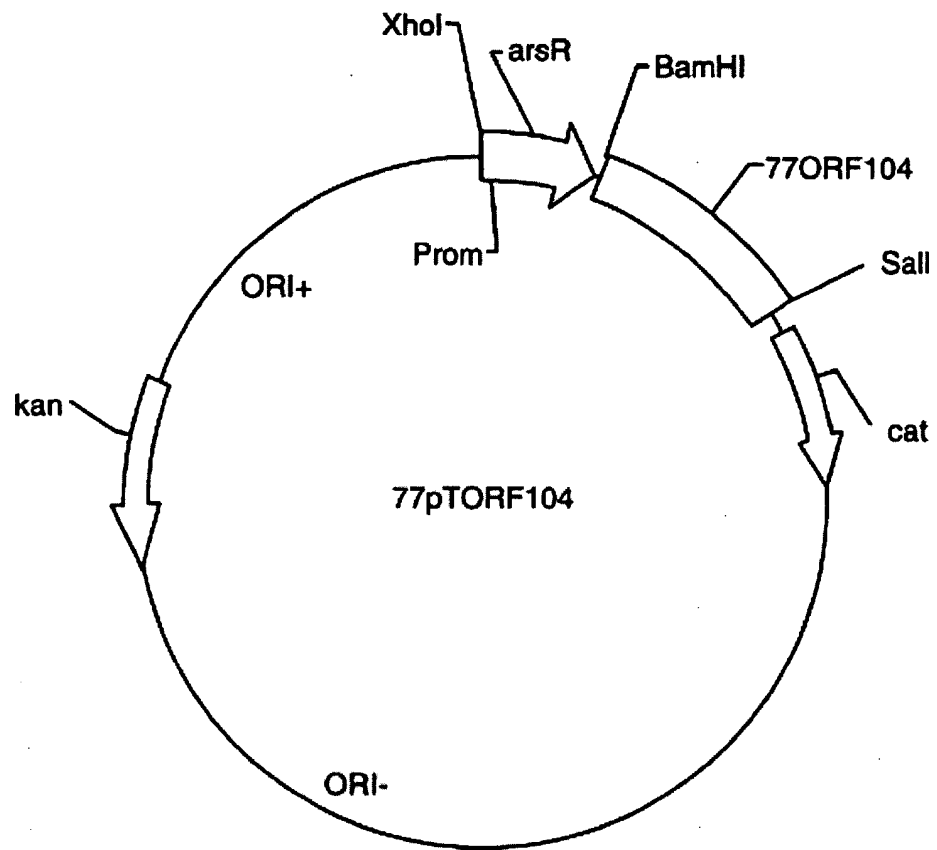
SEQ ID NO:9 DnaC *S. aureus*

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1  MDRMYEQNQM PHNNEAEQSV LGSIIIDPEL INTTQEVLLP ESFYRGAHQH
51 IFRAMMHLNE DNKEIDVVTL MDQLSTEGTL NEAGGPQYLA ELSTNVPTTR
101 NVQYYTDIVS KHALKRRLIQ TADSIANDGY NDELELDAIL SDAERRILEL
151 SSSRESDGFK DIRDVLGQVY ETAEELDQNS GQTPGIPTGY RDLQDMTAGF
201 NRNDLIILAA RPSVGKTAFALNIAQKVATH EDMYTVGIFS LEMGADQLAT
251 RMICSSGNVD SNRLRTGTMT EEDWSRFTIA VGKLSRTKIF IDDTPGIRIN
301 DLRSKCRRLK QEHGLDMIVI DYQLIQGSG SRASDNRQQE VSEISRTLKA
351 LARELECPVI ALSQLSRGVE QRQDKRPMMS DRESGSIEQ DADIVAFLYR
401 DDYYNRGGDE DDDDDGGFEP QTNDENGEIE IIIAKQRNGP TGTVKLHFMK
451 QYNKFTDIDY AHADMM

```


Figure 7A



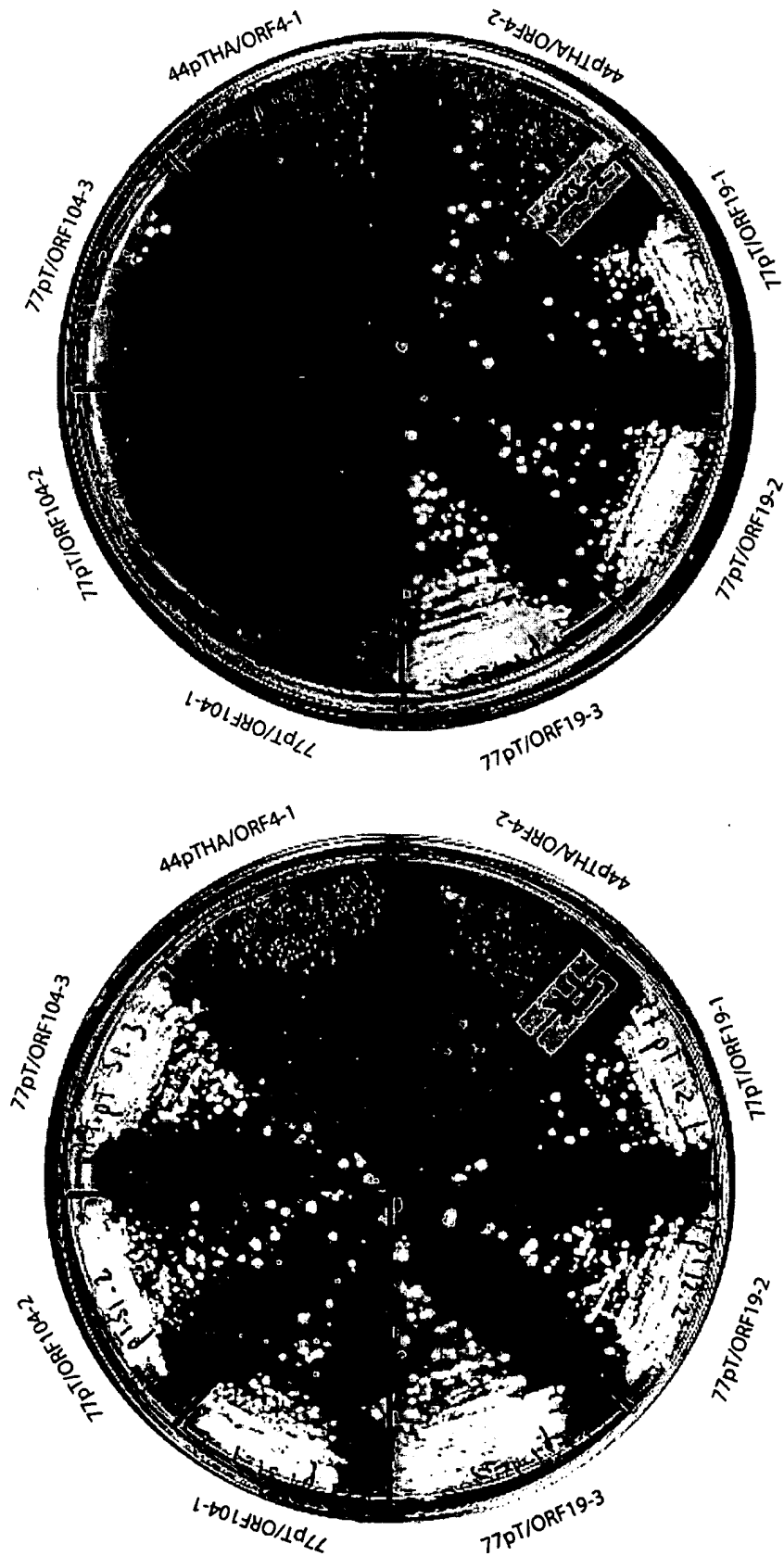


Figure 7B

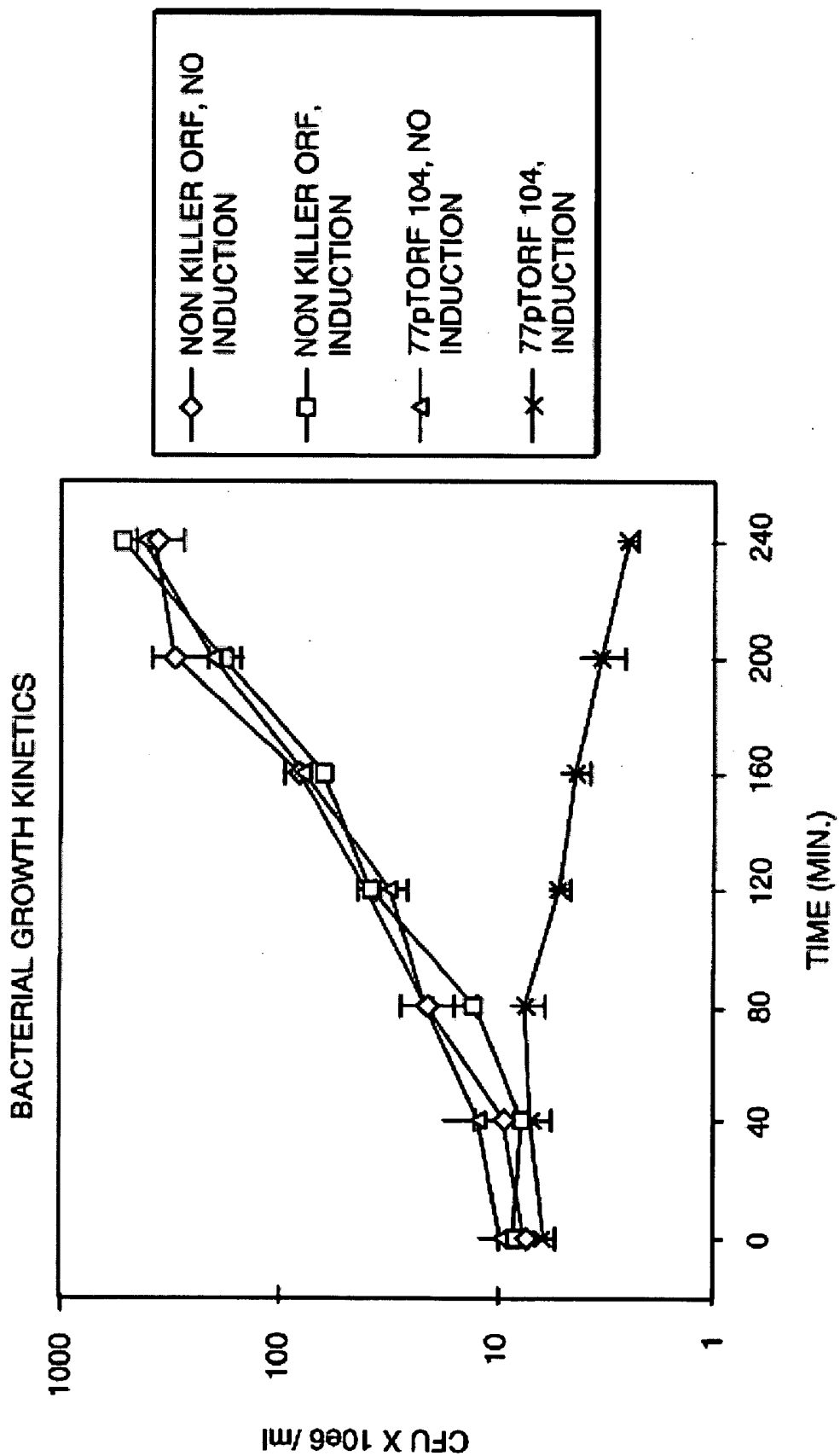


Figure 7C

Figure 8A

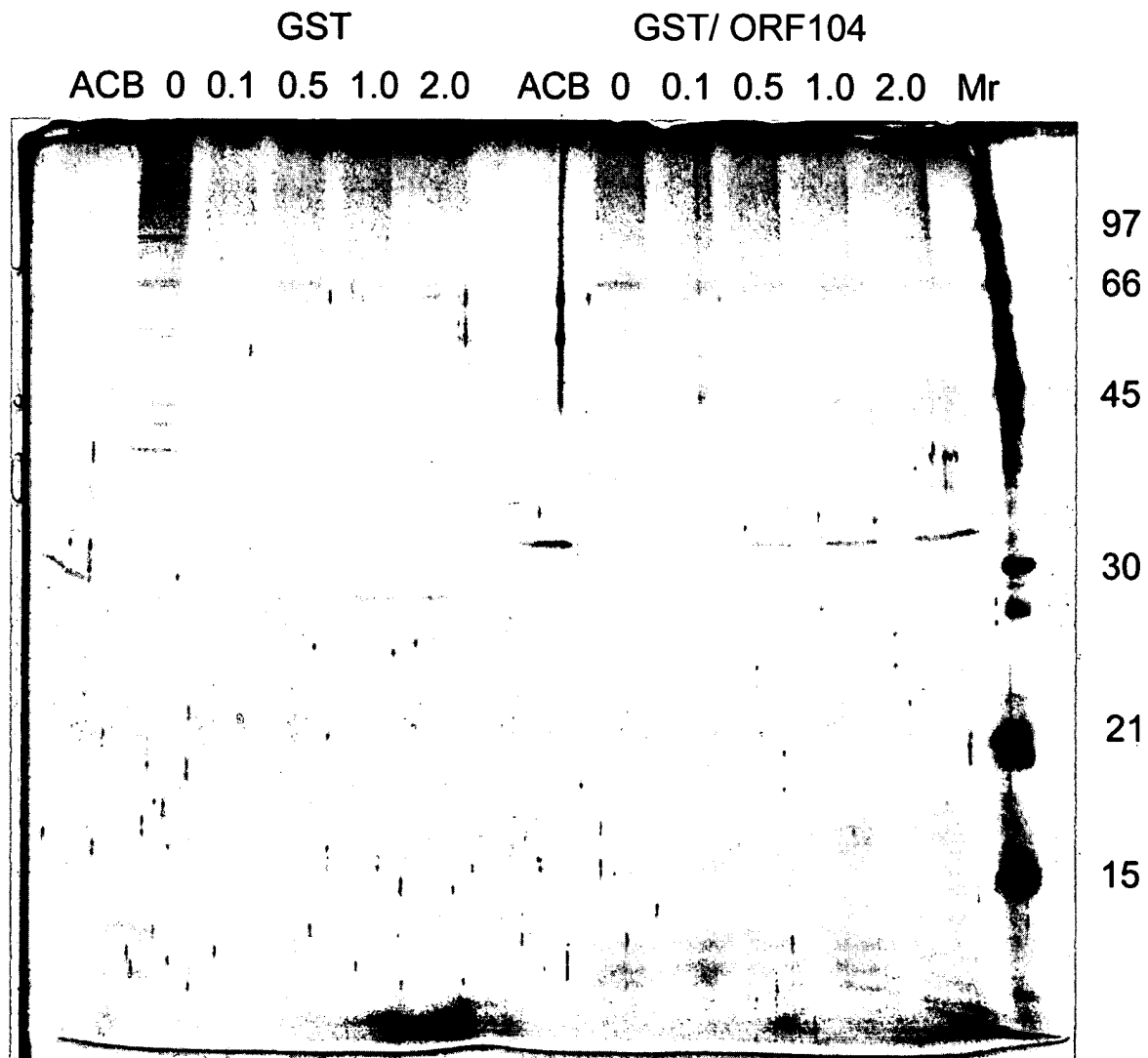


Figure 8C

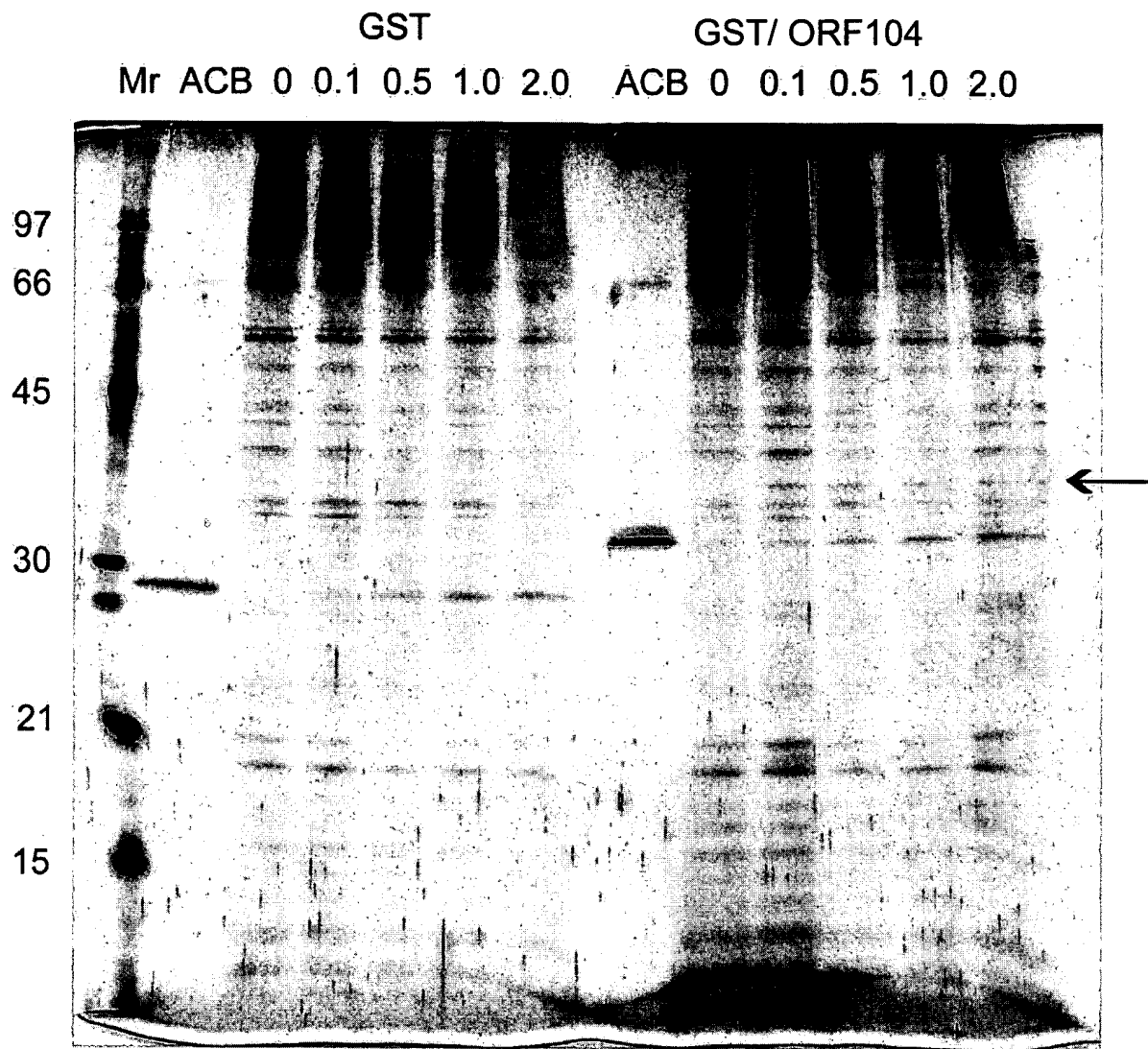


Figure 8D

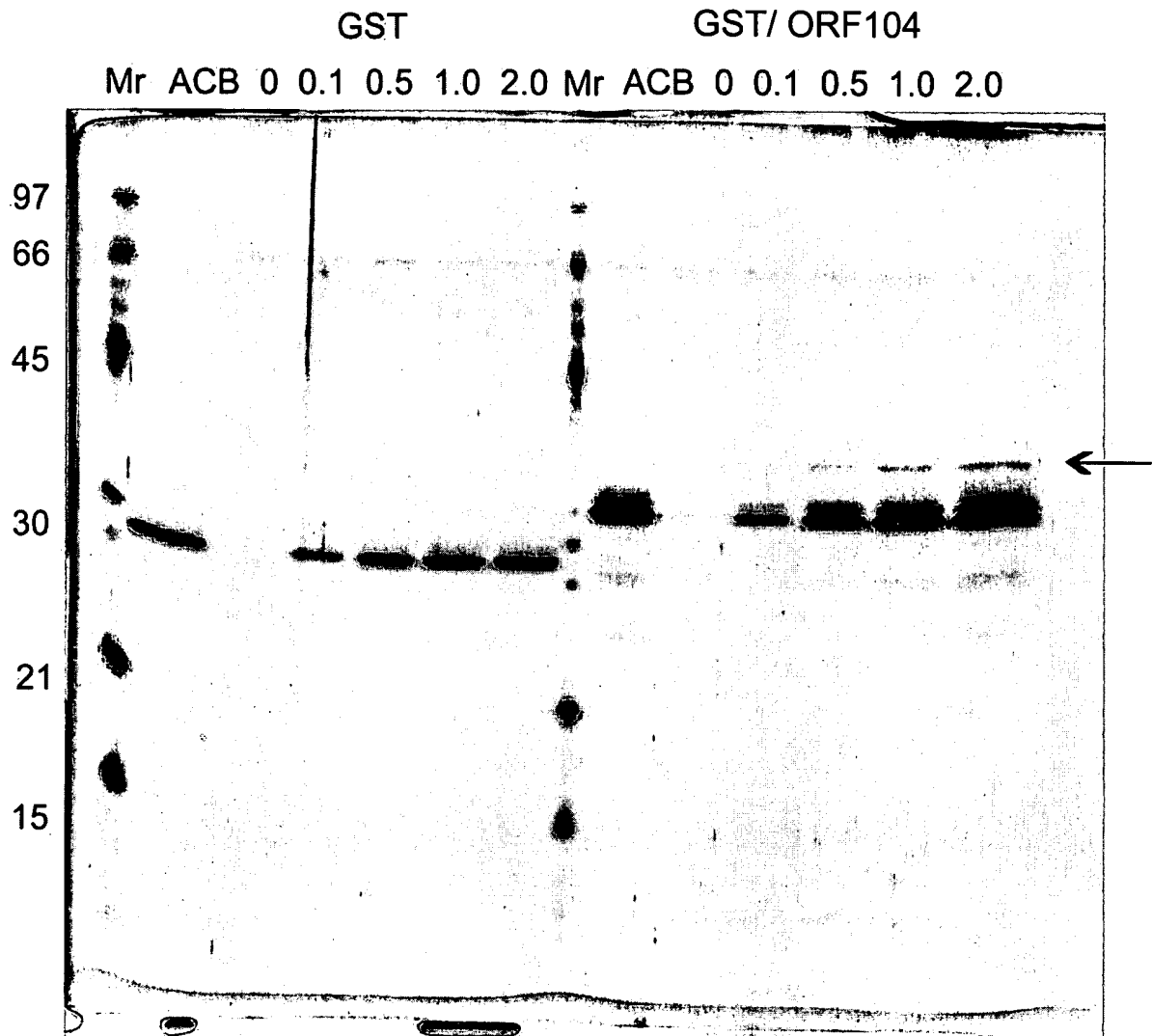


Figure 9

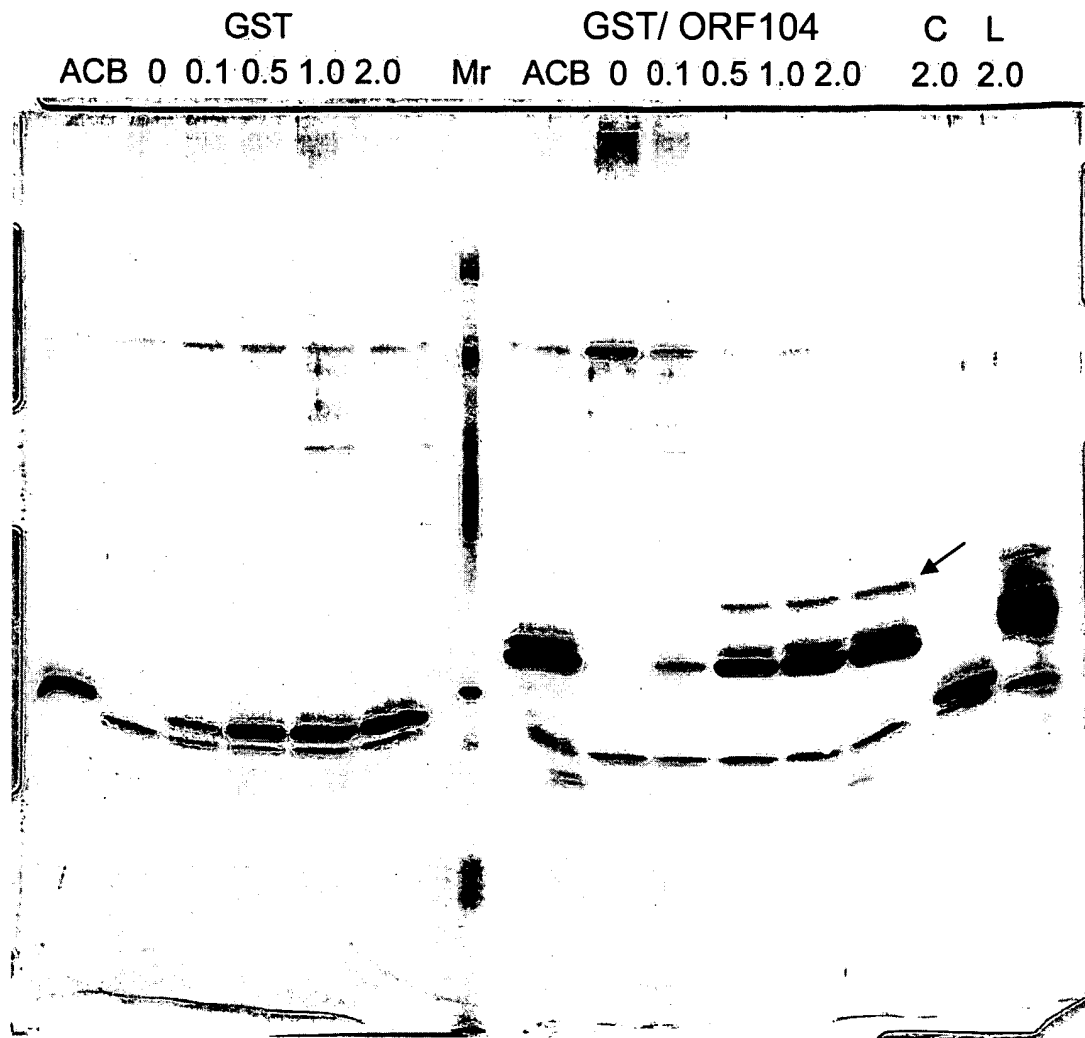


Figure 10

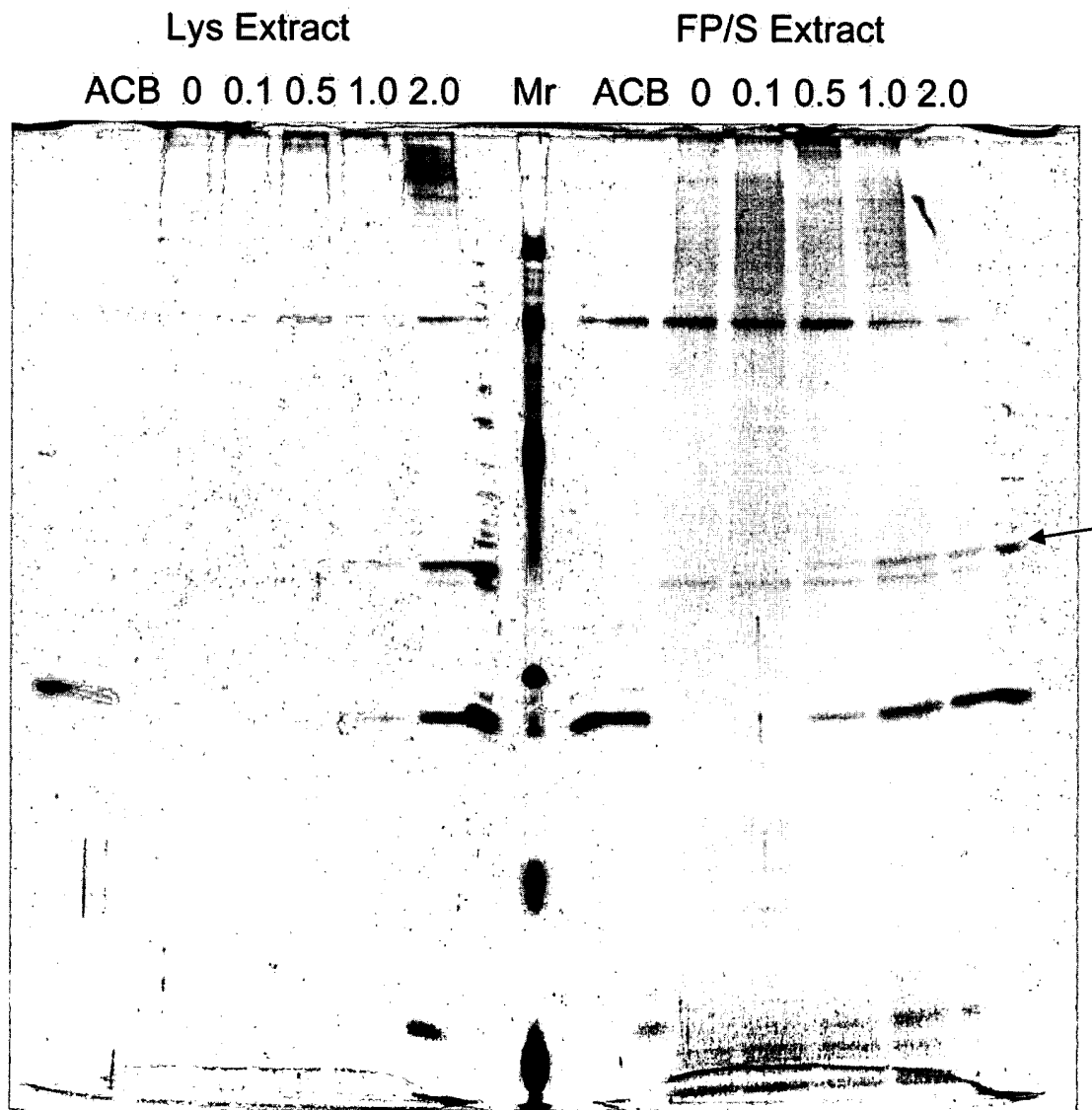


Figure 11A

Tryptic peptide mass spectrum of interacting protein (1% Triton X-100 elute)

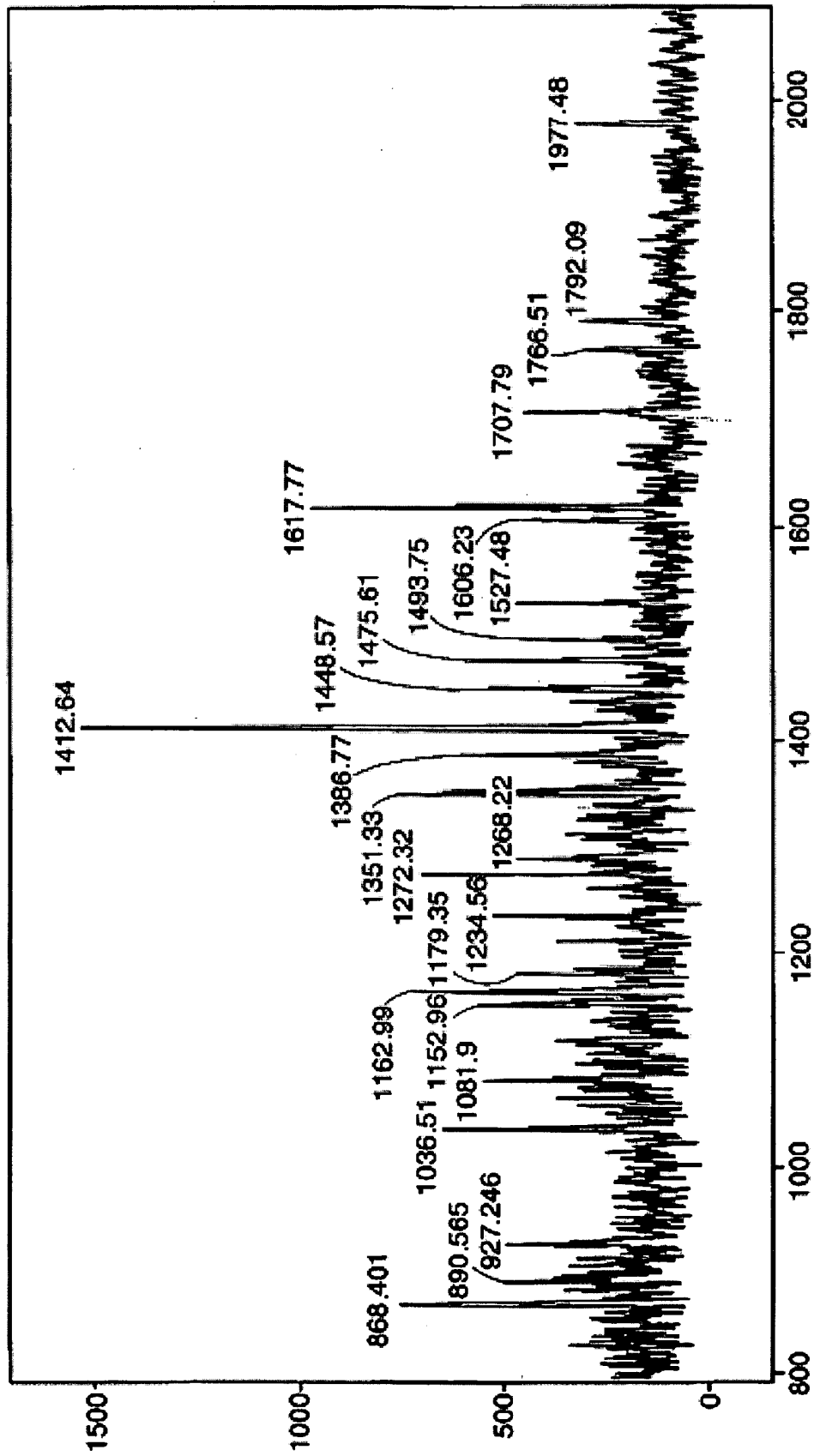


Figure 11B

Tryptic peptide mass spectrum of interacting protein (1% SDS eluate)

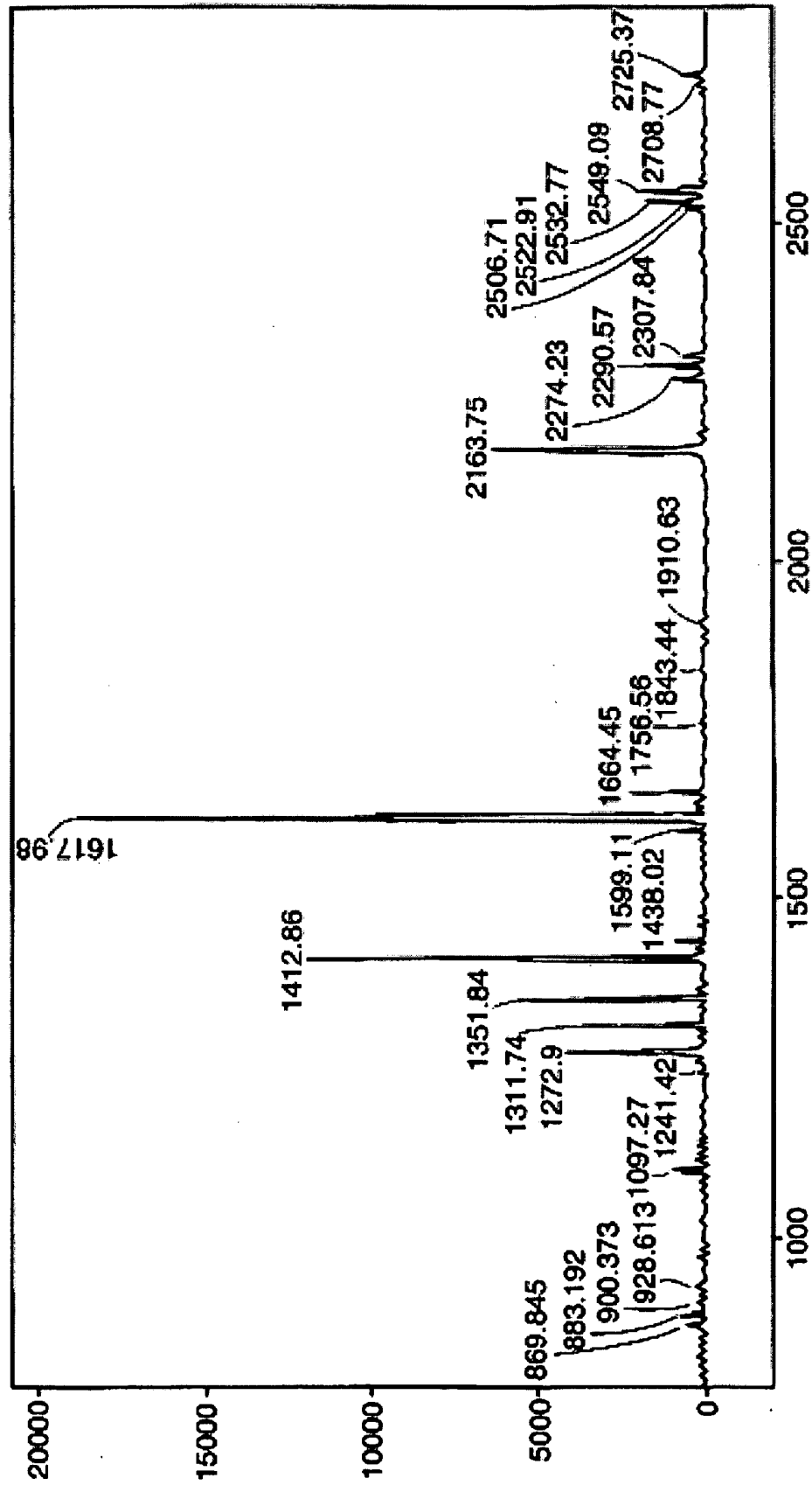


Figure 12A

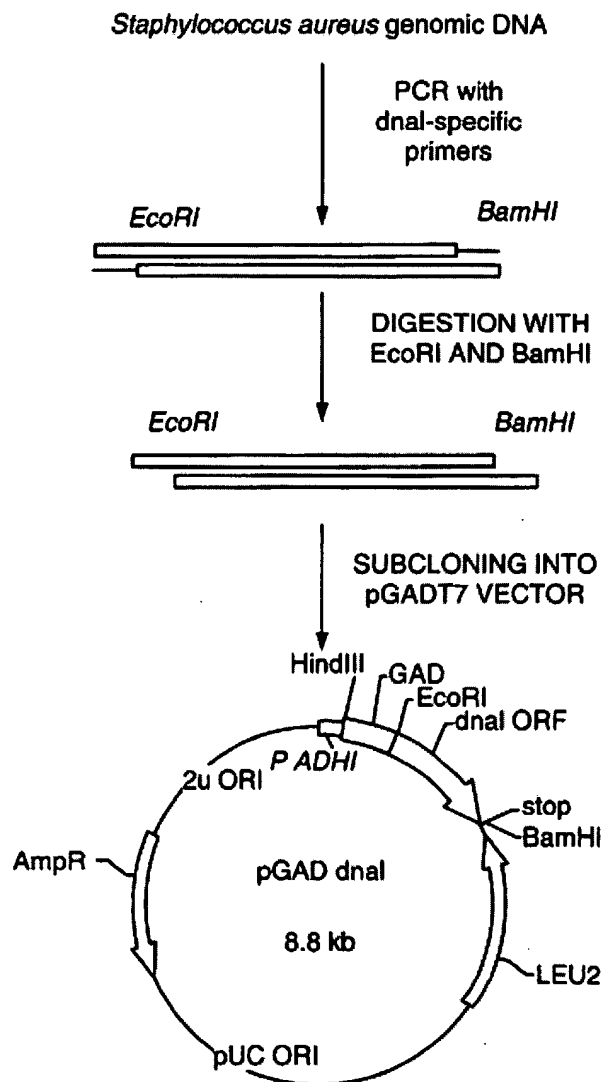


Figure 12B

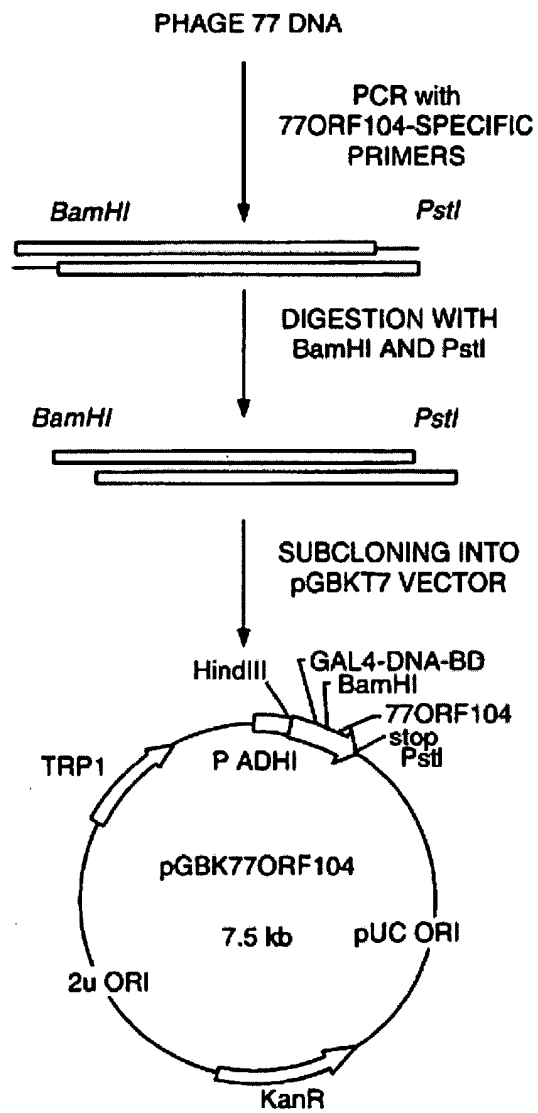


Figure 12C

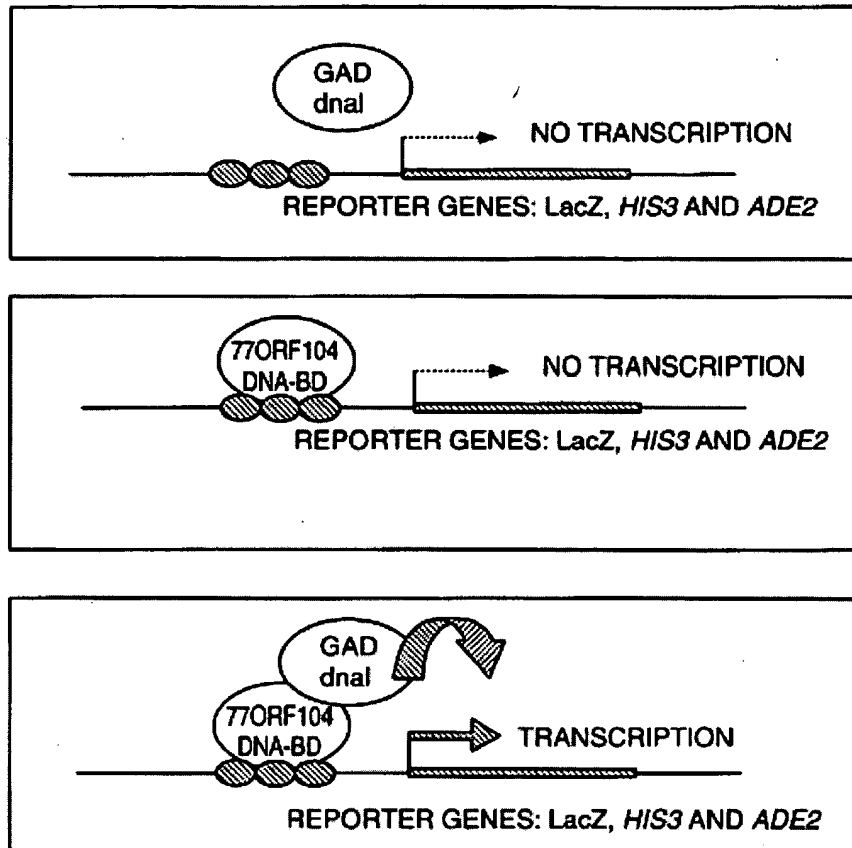
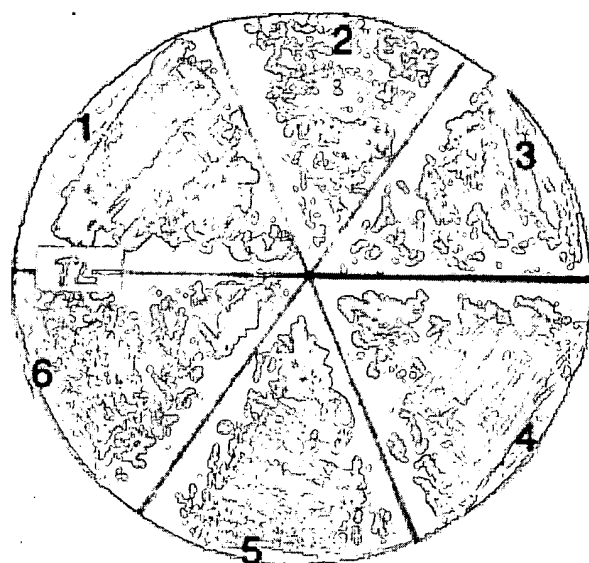
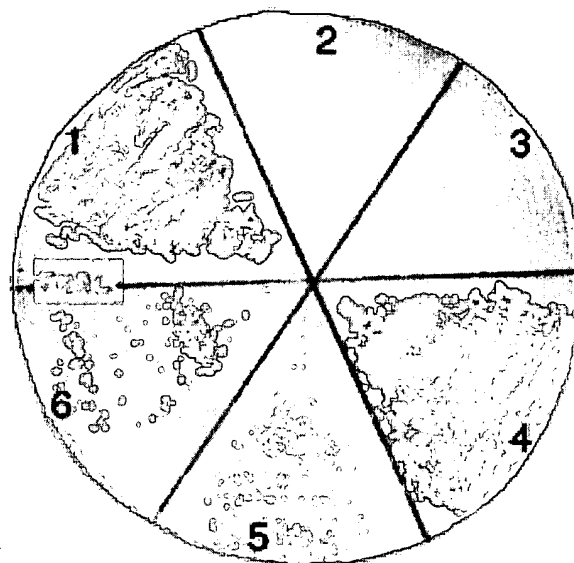


Figure 12D



SD plate without Trp and Leu



SD plate without Trp, Leu, His and Ade

SD: Synthetic medium, Trp: tryptophan, Leu: leucine, His: histidine, Ade: adenine

- 1) pGBKT7-53 and pGADT7-T
- 2) pGBKT7-53 and pGAD dnaI
- 3) pGBK77ORF104 and pGADT7-T
- 4) pGBKT7-LAM and pCL1
- 5) pGBK77ORF104 and pGAD dnaI
- 6) pGBK dnaI and pGAD77ORF104

Figure 12E

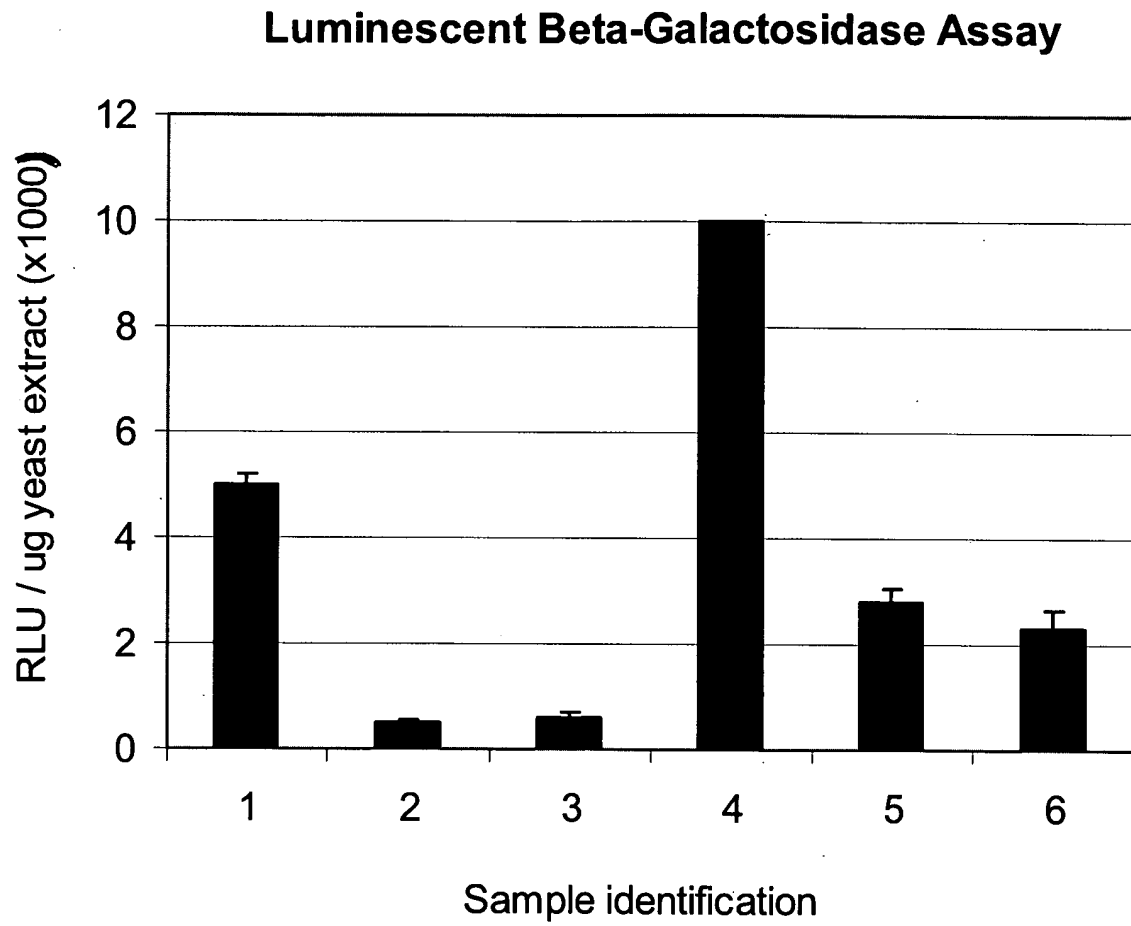


Figure 13

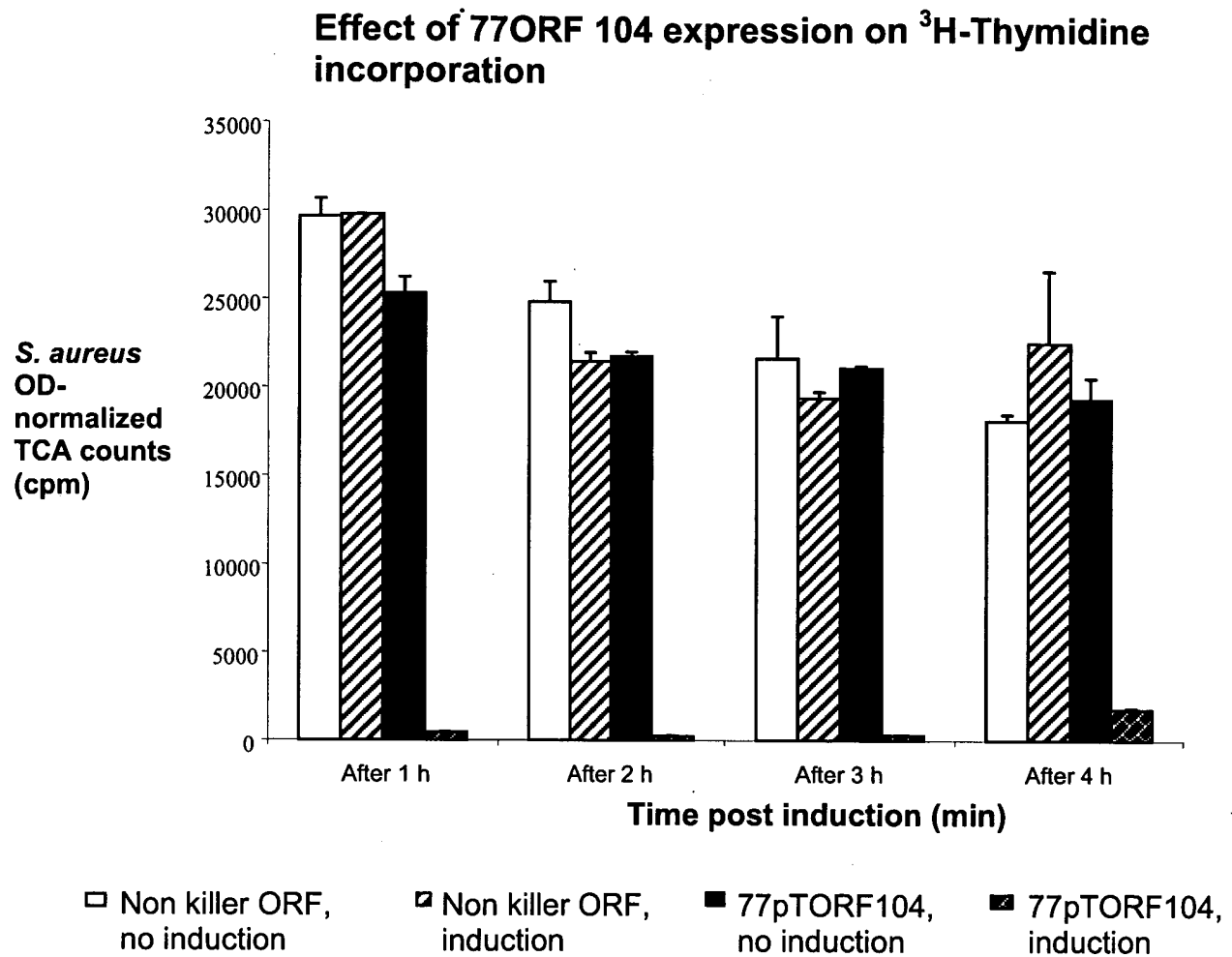


FIGURE 14A

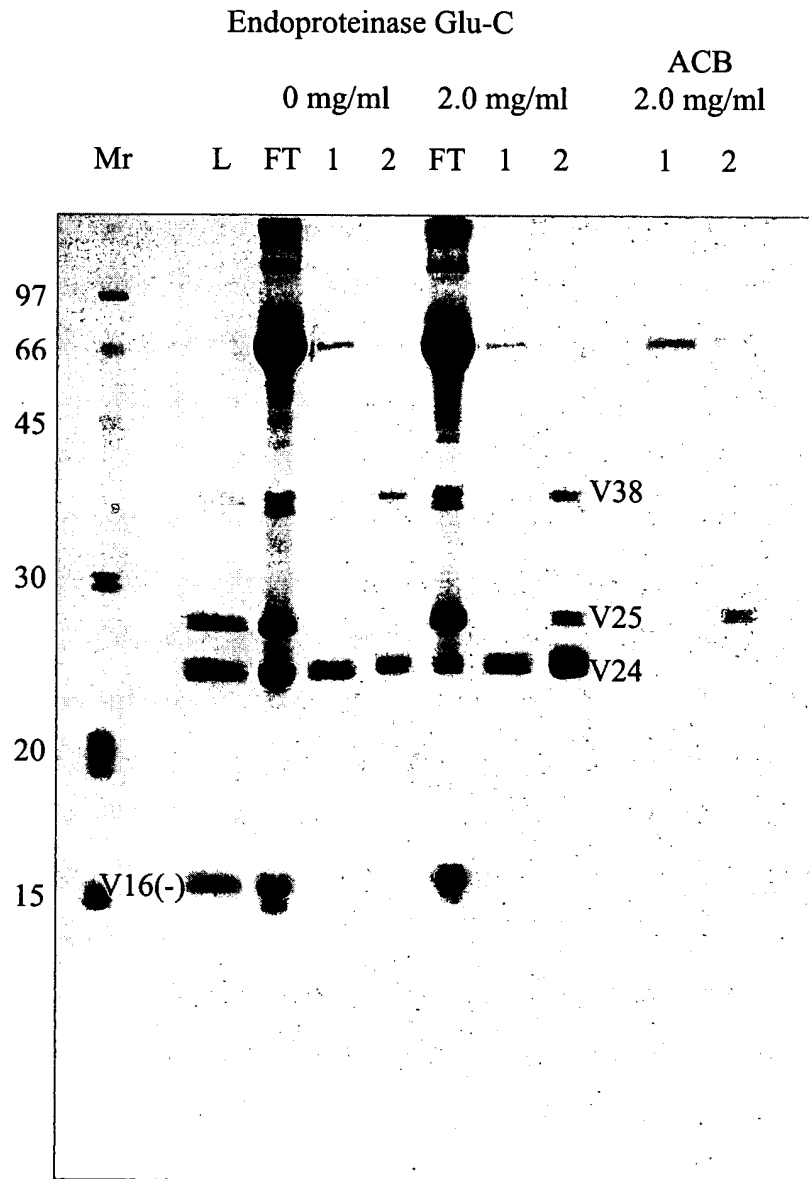


Figure 14B

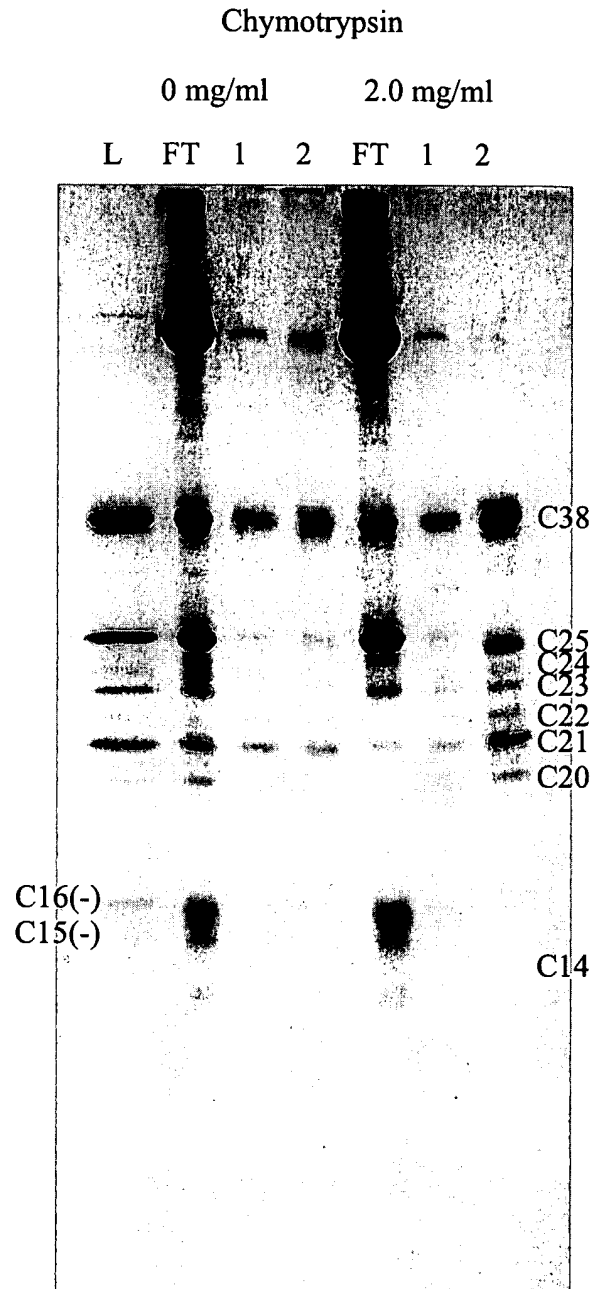


Figure 14C

Amino acid residues corresponding to interacting partial proteolytic fragments.

Protease	Proteolytic fragment ID (from Fig. 14A, B)	ID of SEQ ID NO:2 fragment interacting with 77ORF104	
		From amino	to carboxyl
Endoproteinase Glu-C	V24	117	313
	V24	119	313
Chymotrypsin	C38	12	313
	C25	83	313
	C24	77	305
	C23	77	304
	C22	116	313
	C21	131	313
SEQ ID NO:2	complete	1	313

Figure 15

SEQ ID NO: 16

>*S. aureus* DnaI: amino acid 150-313

AADDICTAITNGEQVKGLYLYGPFGTGKSFILGAIANQLKSKKVRSTIIYLPFIRTLKG
GFKDGSFEKKLHRVREANILMLDDIGAEVTPWVRDEVIGPLLHYRMVHELPTFFSSNFD
YSELEHHLAMTRDGEETKAARI IERVKSLSTPYFLSGENFRNN

SEQ ID NO: 17

>*S. aureus* dnaI: nucleotide 448-942

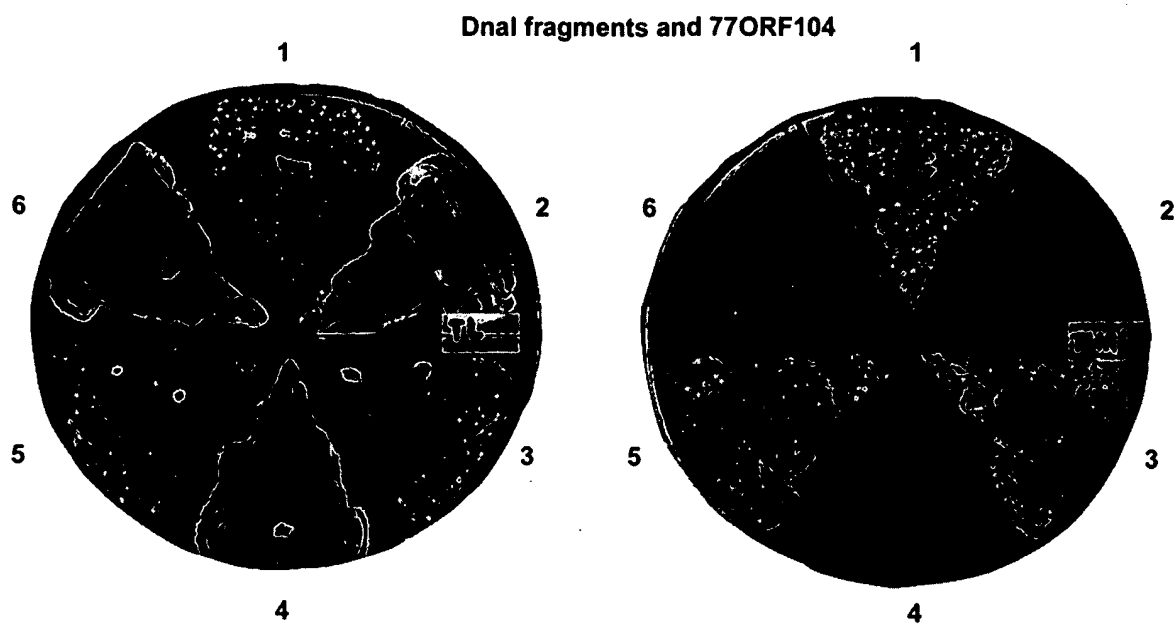
gcagcagatgatatttgtacagcaataactaatggggaacaagtgaaaggcctttacctt
tatgggtccatttgggacaggtaaaatcttttattctaggtgcaattgcgaatcagctcaaa
tctaagaagggtacgttcgacaattatctttaccggaatttattagaacattaaaagggt
ggctttaagatgggttcttttgaaaagaaattacatcgcgtaagagaagcaaacatttta
atgcttgatgatattggggctgaagaagtgactccatgggtgagagatgaggttaattgga
cctttgctacactatcgaatgggtcatgaattaccaacattcttttagttctaattttgac
tatagtgaattggaacatcatttagcgatgactcgtgatgggtgaagagaagactaaagca
gcacgtattattgaacgtgtcaaactctttgtcaacaccatactttttatcaggagaaaat
ttcagaaacaattga

SEQ ID NO: 18

>*S. aureus* DnaI: amino acid 64-313

YKDQQKHVDGHKFADCPNFVKGHVPELYVDNNRIKIRYLQCPCKIKYDEERFEAELITSH
HMQRDTLNAKLKDIYMNHRDRLDVAMAADDICTAITNGEQVKGLYLYGPFGTGKSFILGA
IANQLKSKKVRSTIIYLPFIRTLKGGFKDGSFEKKLHRVREANILMLDDIGAEVTPWV
RDEVIGPLLHYRMVHELPTFFSSNFDYSELEHHLAMTRDGEETKAARI IERVKSLSTPY
FLSGENFRNN

Figure 16A



1. pGADDnal(150-313) and pGBKORF104
2. pGADDnal(150-313) and pGBKLam
3. pGADDnal(64-313) and pGBKORF104
4. pGADDnal(64-313) and pGBKLam
5. pGADDnal and pGBKORF104
6. 77pGADORF12 and pGBKORF104

Figure 16B

